JULY, 1947

Industrial FINISHING

Published Monthly in the Interest of Product Cleaning and Painting by Practical Publications, Inc., 1742 N. Meridian Street, Indianapolis 4, Ind.

AIR POWER

S PEACE POWER

August 1, 1947 will mark the 40th Anniversary of Air Force Day . . . and reproduced herewith is the official symbol for that occasion.

peaking of anniversaries and symbols reminds us that the Lilly rnish Company is now marking its 83rd anniversary—and the lly KEY reproduced herewith is symbolic of dependable fin- es supplied to industry during those years.

Y VARNISH COMPANY · INDIANAPOLIS, INDIANA
LILLY COMPANY · HIGH POINT, N. CAROLINA

OTIS ELEVATOR

SOLVES TOUGH FINISHING PROBLEM WITH PALA

Engineers of Otis Elevator Company, makers of the Otis Escalator* found the answer to a tough finishing job in Roxalin PALADIN*, an Interchem Finish.

First, Roxalin PALADIN's perfect dipping properties insured complete coverage and protection on the step tread without the double handling necessary with sprayed films.

Second, PALADIN's air dry speed saved oven curing, reduced drying space.

Finally, PALADIN's bull dog grip aluminum withstood the grinding polishing of the treads, without chipp or flaking on the other areas of the assembly.

To get the facts on PALADIN wh point the way to savings in costs wh unusual and tough finishing jobs are volved write to:

Interchemical Corporation, Finish Division, 57 State Street, Newark F, N

ROXALIN PALADIN

An Interchem *Finish*

*Reg. Trade Mark
*Reg. U. S. Pat. Off.

TWENTY-THIRD YEAR OF PUBLICATION

Industrial FINISHING

W. H. ROHR, Editor P. C. BARDIN, Associate Editor

Vol. XXIII, No. 9 JULY, 1947 $2.00 a Year

Contents of This Issue

Random Comment on the Industrial Scene 8
Spray Finishing of Metal Ware 27
Gold and Metal Leaf Applied to Fine Frames 36
Radio Cabinets Finished On and Off Conveyors 44
Aluminum Paints 50
Decals Applied in Mass Production 54
Compounds for Wet and Dry Spray Booths 64
How I'd Select and Buy Finishing Materials 74
Letters from Readers 90
Questions and Answers 96
Materials; Supplies; Equipment 98
Booklets; Catalogs; Circulars 116
Editorial 120
"Classified Advertising" Section 133
Advertisers Index 136

Commonwealth Engineering Co. Occupies New Quarters 32
Optimus Appoints Service Man 48
Monsanto Establishes Texas Office 52
P.P.G. Co. Appoints Executives 62
Busker Joins Hilo 62
National Metal Congress to Meet in Chicago 62
DuPont Tranfers Salesmen 72
Wyandotte Makes Changes in Industrial Staff 72
Mixing Equipment Co. Appoints Representatives 89
New Principle in Oil Burning 94
DeVilbiss Moves New York Office 112
Bucy Appointed General Manager of Zapon Division 114
President of Arco Co. Elected University Trustee 126
Rockwell Elected Director of Hercules 126
Instrument Conference and Exhibit in Chicago 126
American-Marietta to Expand Louisville Plant 132
Gardner Promoted by Monsanto's Merrimac Divn. 132
Polymerization 133

Owned and Published by

Practical Publications, Inc., 1142 N. Meridian St., Indianapolis 4, Ind.

Eastern Representative: C. A. Larson, 254 West 31st St., New York 1, N. Y.; Phone Penna 6-9049

SIPHON OUTFIT

Adaptable to wide range of painting, touch-up, shading and high lighting. Ideal all types autobody work.

PRESSURE OUTFIT

Ideal for production finishing, painting contractors, fleet owners. 5, 10, 15 gal. capacity.

THE "MUFF-GUN"

Ideal for application of all types of heavy materials including automotive underbody coatings.

Test it and see why spray men agree--"There's nothing like for fast, easy production of perfect spray patterns"

STANDARD JET GUN

Same mechanical features as "Hollow Air" Spray Gun with exception of Atomizer Head.

AIR CONDITIONER

Standard-equipped two-gun operation plus one high pressure outlet. Air pressure easily regulated by forged brass air regulator.

PRESSURE TANKS

Made of drawn steel reinforced with heavy bead at top. Leak proof. Approved Underwriters Laboratory.

BLACK

The Black Manufacturing Company

1425 WEST BALTIMORE STREET. BALTIMORE 23, MARYLAND

Looking Ahead. Now that inventory is out of the way, and Fall just sixty days ahead, this should be an excellent time to give much though to prospective markets, to intensify the sales force, to train new salesmen on the new methods of selling.

Then what about the product? Is the line diversified enough in price and quality to meet the demands of the mass market?

Each manufacturer is an integral part of the industry of which he is a member. Is there close enough cooperation between the members of the industry? Each manufacturer is not only in competition with other members of his particular industry, but he is also in competition with all of the other industries battling for the consumer dollar.

Yes, now is the time to take stock, and when the final figures are in, do something about it.

* * *

Plenty of Gasoline. There will be enough gasoline available for industrial processes and the family auto until the world turns to air transportation entirely, according to R. P. Russell, president of the Standard Oil Development Co.

Refiners are prepared to supply the demands of industry, automobiles and aircraft with natural gasoline for an indefinite period. When and if this product becomes exhausted there will be plenty of synthetic fuels. These can be produced from potatoes, sawdust and cabbages. Gasoline has already been produced from natural gas and bituminous coal.

So here is one item we can check off the worry list.

* * *

Russian Railway Equipment. News reaching us from the Soviet News Service indicates Russian engineers are using aircraft construction principals in building new types of railway coaches, locomotives and automobiles.

They have built a frameless railway coach which resembles the body of a plane placed on wheels. It is built of duraluminum and alloy steels, and is said to be 40% lighter and considerably stronger than steel cars.

It is predicted that upon completion of the frameless, electric locomotive, a train will be capable of a speed of 85-miles per hour, and will consume 60% less power than an ordinary train.

They also promise a frameless motor vehicle guided by tail-rudders within five years.

* * *

Let's Save Free Enterprise. "Management must prove it's ability to provide a stable economy that is satisfactory to the people as a whole, or see the American system of free enterprise replaced." So said Brehon Somervell, war-time head of the Quarter-

(Continued on page 10)

HERE IT IS!

...A NEW Non-Grain Raising *Combination* Stain-Filler TO BOOST PRODUCTION PROFITS

OW... Non-Grain-Raising Stains based on the Chadeloid tents have been incorporated into a new emulsion type ain-filler which includes all the characteristics required r both production and custom work.

Synstain emulsion is sufficiently plastic to remain on ood surfaces for up to 24 hours before wiping, if a pe-od of this duration is required. Rapid drying follows iping.

The material exhibits good holdout qualities and knits ell with top surfacers. It may be colored to your order. arity of color and light fastness are assured by inclusion Chadeloid color-true stains.

Dip ... spray ... brush ... the new emulsion is adapta-e to either method when properly reduced. The mate-al will air-dry in four hours, or may be force-dried in -120 minutes at 100°F.

REMEMBER: Nearly 90 manufacturers of woodfinishing materials are licensed to manufacture and sell Chadeloid products. You'll find one or more near you.

Chadeloid-Authorized manufacturers merchandise their products under their own trade names. Ask your supplier for materials manufactured under the Chadeloid non-grain-raising, non-bleeding, color-true patents.

For FREE BOOKLET, "Production profits from Non-Grain-Raising Stains," fill out and mail the coupon below. It provides factual information covering methods of application and other pertinent data for all users and prospective users of Chadeloid products, and is illustrated with pictures taken in production shops.

The booklet also includes a list of Chadeloid-Authorized suppliers of non-grain-raising stains and combination stain-fillers.

CHADELOID-CORPORATION

137 NORTH PERRY STREET • DAYTON 2, OHIO

FREE to YOU

is new illustrated booklet gives
-to-date and authentic informa-
n on the use of non-grain-rais-
g stains and stain-fillers . . . pro-
ction time-saving and profit-mak-
g information which is valuable
d timely.

PLEASE SEND ME your illustrated booklet, "Production Profits from Non-Grain-Raising Stains," which includes time-saving and profit-making information of value to the woodfinishing industry.

Name _____

Title _____

Company _____

Address _____

City _____ Zone _____ State _____

Klarifiant

FOR MAXIMUM EFFICIENCY IN
WATER CURTAIN
SPRAY BOOTHS

Eliminate

PLUGGED NOZZLES
•
WATER BREAKS
•
SCALE-CLOGGED LINES
•
SLUDGE IN RESERVOIR
•
LOSS OF PRESSURE

FOR DETAILS WRITE

The Du Bois Company
CINCINNATI 1 OHIO

DETROIT
Handy 'TAC' RAGS
TRADE MARK REG.
Successfully used by Leading Industrial Plants for over 11 Years

For the cost of a few cents — Absolute Assurance of a perfect Mirror-Like Finish through removal of all DUST, LINT, and SANDING PARTICLES before Painting.

Economical Durable
Never Dry Out or Stiffen
Remain Soft and Tacky
Indefinitely
Always Ready for Instant Use
SpontaneousCombustion-Proof

If your Local Paint Dealer cannot supply you, write to Manufacturer.

DETRO SALES CO.
414 North San Pedro Street
Los Angeles 12, Calif.

master Corps, and now president of Koppers Co., Inc.

He also stressed the fact that investors, customers and employes share alike in their responsibility in providing a stable economic system. Management should take the lead, but management cannot carry the burden alone.

Just as every automobile driver is sometimes a pedestrian, so most of us are investors, managers, and employes at one time or another. How we think, how we act, and how much responsibility we are willing to assume will determine what we can expect of the future.

* * *

Research Over-Specialized. "Do our research people have enough time to play with ideas?" Dr. Charles A. Thomas, executive vice president and technical director of Monsanto Chemical Co., asked at the annual meeting of the Industrial Research Institute, Inc. The Institute is a non-profit organization composed of 88 member companies from various fields of industry.

Among other things Dr. Thomas said, "In our desire to departmentalize, we have separated our scientists into highly specialized groups. As a result, research people have little opportunity to be stimulated by men working in other fields. The effect of this strict segregation might, in the long run, be disastrous.

"A man is assigned to work on a certain problem, and is certainly not encouraged to work or think outside this framework. While this is the most efficient way to solve problems, it leaves a research worker very little time for truly creative thinking and dabbling in fields that intrigue him. He buries

his ideas, stores them away until some day when he will have liesure which, alas, seldom comes. It is my belief that a lot of good ideas have died in confinement.

"Assigned research should be continued in the modern industrial laboratory, but the specialized system should be modified to stimulate original thinking.

"As a means of achieving this stimulation, I recommend a plan which is not new, but which has seldom been applied to the industrial research laboratory. The plan is a 'retreat' similar to the withdrawal from tensions and demands of normal life used by some religions. Such retreats frequently have spearheaded the greatest developments in philosophy, art and religion.

"Many industrial scientists are living off what might be termed their 'intellectual fat.' Under the stress of modern industrial living, they have no time to replenish their intellectual flesh.

"I suggest that it might be a step in the right direction if the more progressive key men in our modern laboratories were told to organize their programs and distribute their responsibilities to subordinates so that for a period of a few weeks every year they could absent themselves from their regular duties. Allow them to spend this time as they wish, in more or less seclusion where they wish, in libraries, in other laboratories, even out in the quiet country. Indicate to them that this is time for their personal development; that ideas that may have been in the backs of their minds can now be tried. Suggest that they read the literature in their own and related fields."

This is good advice, not only for the research people, but to men

(Continued on page 129)

A SAFE, QUICK
WAY TO REMOVE OVERSPRAY
FROM DRY WALLS IN PAINT BOOTHS
WITH A 90% COST SAVING METHOD
FOR DETAILS WRITE

The Du Bois Company
CINCINNATI 1, OHIO

SOLVENT CLEANING

whether your operation is

DIP
SPRAY
MANUAL
AGITATION

We can recommend and supply the right solvent.

UNDERWRITER INSPECTED

WILLIAM J. HOUGH CO.
Phone SEEley 0505
2545 W. Congress Chicago 12

We STARTED at the
FINISH
Over a quarter century ago
NOW
We'd like to have
YOUR FINISH
'Cause it will get you off
to a
GOOD START

For proof—just try
THREE OUTSTANDING PRODUCTS
4600 VINDOLAC
Aristocracy in Lacquer
FASTAIN
Streamlined Stains
FULL-FILL
Fulfills your fondest
Filler hopes

Introductory trial orders for five gallon lots will be accepted at drum prices, if reference is made to this ad.

V. J. DOLAN & COMPANY, Inc.
Manufacturers of *"Unquestionable Quality"* INDUSTRIAL FINISHES
Lacquers • Sealers • Synthetics • Stains • Fillers • Thinners
1830 N. Laramie Ave. Berkshire 0100 Chicago 39, Ill.

WABASH PRODUCTS COMPANY
16TH AND HULMAN STREETS
TERRE HAUTE, INDIANA

SIMAX
THE FINISH THAT LASTS

Industrial Finishes

Lacquers Enamels Sealers
Stains Varnishes Thinners
Synthetics, all types

Spray Finishing

OF METAL WARE

BY M. C. LUMLEY

Superintendent of the F. H. Lawson Co., Cincinnati, tells how a high grade finish is applied in one coat to a wide variety of sizes and shapes of metal ware.

OUR PRODUCTS are highly diversified as to size and shape. The only constant factor is that all of them are made of metal. Items include bath room cabinets, kitchen ware from canister sets to "step-on" garbage pails, waste baskets for home and office, and all types of institutional receptacles. All of these products are finished.

It may sound like putting the horse before the cart, but this is one case where the carrier racks were designed before the layout for the conveyor was made. Racks were constructed to be interchangable so that they will accommodate multiple small items as well as single units of the larger products.

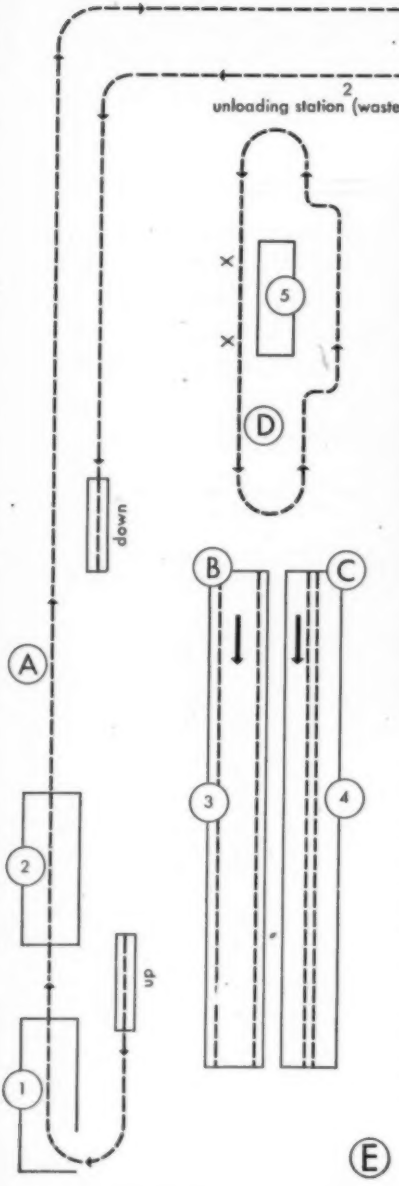
Equipment Required to Produce Flexible System

To better understand the flexibility of the finishing system, so necessary because of the diversified line, refer to the drawing that accompanies this article. Conveyor A is 567-ft. long, with carriers spaced on 24-in. centers. It is driven through a variable speed drive. Conveyors B and D, oven No. 3 and spray booth No. 5 operate together as a unit on waste baskets only. Conveyor C and oven No. 4 are used for all other products. All conveyors are synchronized at a speed of 12-ft. per minute. All spray booths are water-curtain type for three operators on each side, or six to a booth. Finishing material is piped to these booths from eight 60-gal. pressure tanks. Ovens No. 3 and No. 4 are supplied with filtered air. Both ovens are equipped with air locks at each end to prevent heat loss. Fans circulate air in the ovens and fumes are exhausted by means of a duct system.

Preparing Metal Surfaces for the Finish

After fabrication, all sizes and types of products are loaded on conveyor A on the second floor. Upon arriving in the third floor finishing room, they immediately enter the washer. Because of the variety of shapes of products, this washer is equipped throughout with more than the usual number of spray heads mounted on four sides so that the entire surfaces of all the pieces going through will be properly cleaned.

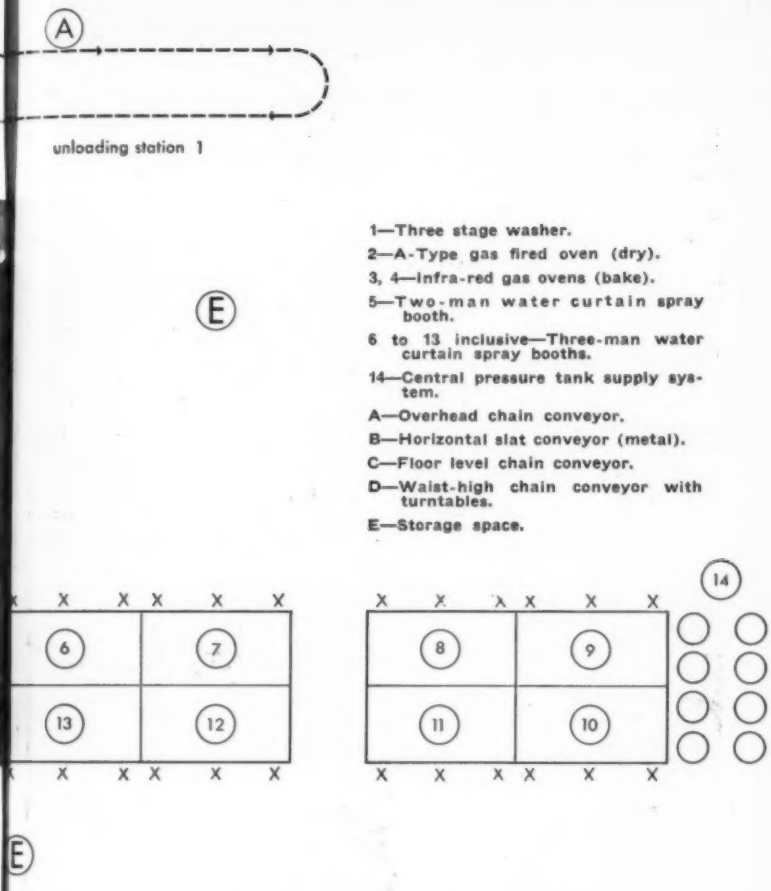
The first stage is a specially formulated acid cleaner sprayed on at 160° F., followed by drain space. Then a water rinse at 160° F., followed by drain and finally mild phosphoric acid at 180° F. Time in the washer is five minutes. The phosphoric acid gives the surface a slight etching which pro-



Bathroom cabinets loaded on castered racks are carried through infra-red gas oven by means of center floor chain. Fresh air and exhaust ducts are shown on each lower side and top center.

vides an excellent foundation for the finish coat. The slight residue left by this acid prevents rusting of the metal if pieces are allowed to stand unfinished overnight or over Sunday.

Upon leaving the washer, products enter the A-type oven No. 2, where they are dried for five minutes at 550° F. The reason for the extremely high temperature is to insure thorough drying of



hinges, crevices in rolled edges, and joints. After leaving this oven, products cool as they travel to the unloading station No. 1 where all pieces except waste baskets are removed and loaded on large four-tiered castered racks.

Waste baskets continue on conveyor A to the unloading station No. 2, where they are transferred directly to turntables on conveyor D. The capacity of this unit is 375 waste baskets per hour. Any overflow is removed at unloading station No. 1 to be finished along with other products.

Spray Finishing and Baking Waste Baskets

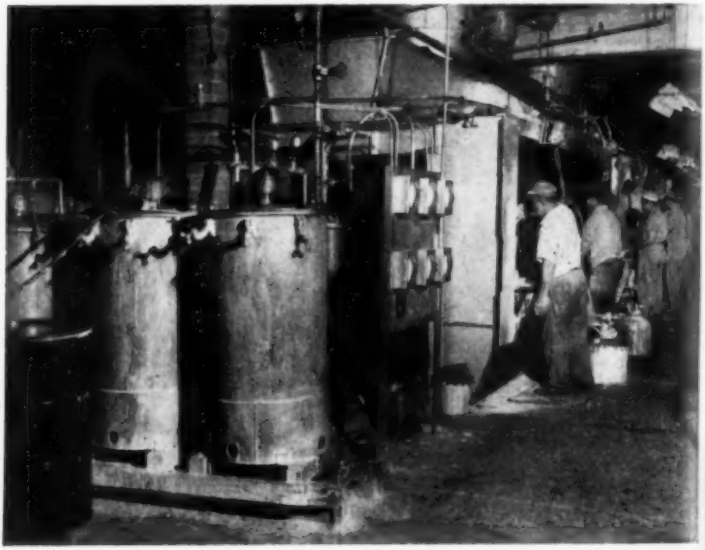
Waste baskets, loaded on turntables mounted on conveyor D, pass through spray booth No. 5, where a heavy coat of specially formulated synthetic enamel is ap-

plied. At the entrance to oven No. 3, baskets are transferred to the horizontal slat conveyor B. Here they are baked at 300° F. for 15-minutes. At the exit end of this oven, baskets are loaded on castered racks where they cool before delivery to the decorating line. Here decals and stripes are applied on a conveyor which finally delivers the baskets to the packing department.

Varied Metal Products Coated and Baked

Anything from bath room cabinets to kitchen stools, transferred from conveyor A to castered racks at unloading station No. 1, are delivered to spray booths No. 6 to 13 inclusive where they receive one heavy coat of synthetic enamel. After coating they are returned to the racks. Loaded racks are delivered to oven No. 4, and are carried through this oven by means of a floor-level chain conveyor C. Baking time is 15-minutes at 300° F. Adequate space is available for rack storage to permit products to cool after leaving the oven. Those products requiring stripes or decals are delivered to the decorating line, the balance go to the assembly line or the packing department.

You may have wondered how oven No. 4 can bake all of the products coated in eight spray booths, whereas oven No. 3, with identical conveyor speed and size, can bake only the products coated in one booth. Baking production in oven No. 4 is increased through



One end of central tank supply system and a view of one side of row of double spray booths. Filtered synthetic enamel is being pumped into the middle tank.

NOW! PAINT BAKING ON *Die Castings* MADE EASY!

NO MORE BLISTERING OF PAINT! NO MORE WARPING OF MATERIAL!

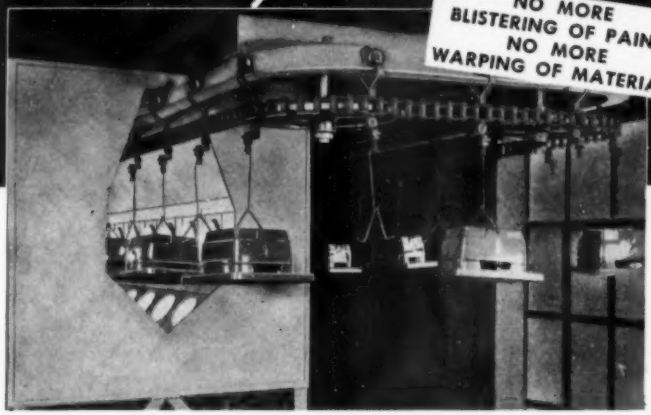


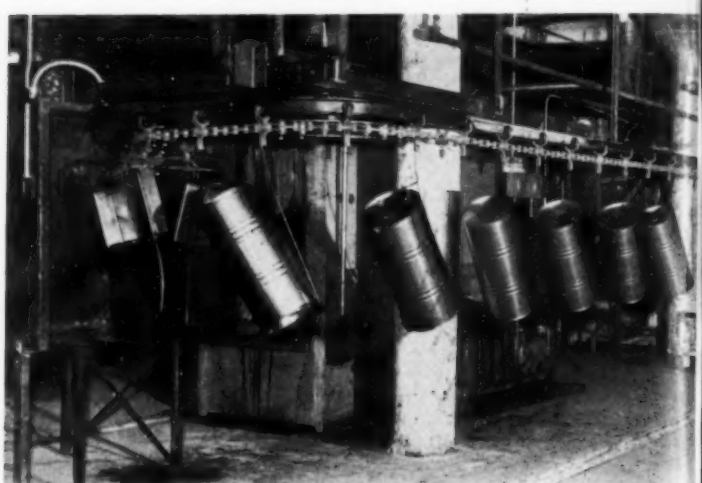
Photo shows Jensen installation at Syncro-Saw Corp., Rochester, Mich.

SPECIAL NEW JENSEN INFRA-RED METHOD GIVES AMAZING RESULTS ON ALL MATERIALS!

AT LAST! Complete control of temperatures over the *entire* metal surface makes paint baking on die castings—*by infra-red*—easy, safe, simple. Three new Jensen developments make this astounding accomplishment possible. (1) Nested Lamps—*positively removes danger of overbaking certain areas while underbaking others!* (2) Unlimited Heat Variance Combinations—*permits quick changing of heat densities!* (3) Dual Heat—*combines convection heat with radiant energy!* Many amazingly successful Jensen installations in die casting plants the country over *prove* Jensen superiority. You, too, have a surprise waiting. Laboratory tests will be run on your products, using your finishes, *without cost or obligation.* All parts will be returned for your inspection. Act Today!

JENSEN SPECIALTIES, Inc. **JENSEN** 9331 FREELAND DETROIT 27, MICH.

DESIGNERS and BUILDERS of "DUAL HEAT" INFRA-RED OVENS • CONVEYORS • PAINT DIP TANKS



Metal ware entering washer. Note two types of hangers used for bathroom cabinets and waste receptacle shells. Inside as well as outside surfaces must be thoroughly cleaned.

the use of the greater capacity of the castered racks.

Formulation of Finishing Material Is Very Important

The excellence of the one coat finish may be attributed to special formulation of the material. The white synthetic enamel used on most of our products is mixed with solvents to a viscosity of 20 seconds at 80° F. (No. 4 Ford cup), and filtered into the pressure tanks. A line pressure of 10-lbs. is maintained. Air pressure at the gun is 60-lbs.

If the guards of electric fans or of other moving equipment are painted bright red or yellow, they will become more conspicious and the danger of injury will be reduced.

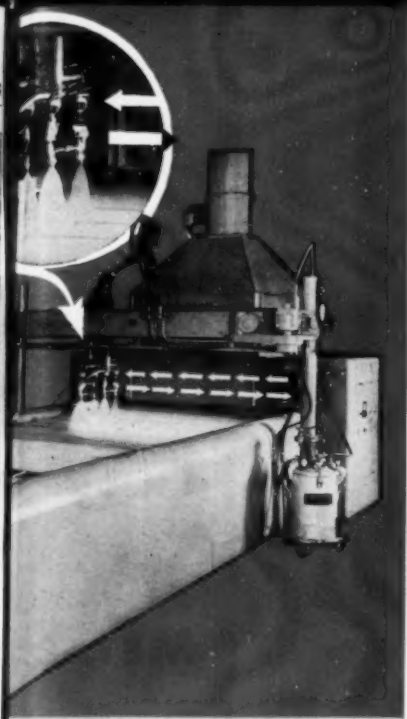
Commonwealth Engineering Co. Occupies New Quarters

Present research facilities will be more than doubled, and many new laboratories will be available, when The Commonwealth Engineering Co., Dayton, Ohio, occupies new quarters here beginning July 1.

The Austin Co., Builders, have turned over the new building, of the most modern construction and layout, as of June first. Installation of utilities and new laboratory equipment will be completed in thirty days.

New laboratories for research in biologicals, low-temperatures, electronics, and instrumentation will occupy the new building. In the adjoining structure, present home of Commonwealth, will be housed the industrial finishes, coated fabrics, plastics, metallurgy, industrial chemistry, hydraulics and high-vacuum laboratories.

Commonwealth's offices have recently been moved to a downtown location in order to provide additional space in the laboratories. Applied research, development, design and engineering in the broad fields of industrial chemistry, mechanics, electricity and electronics are the prinicpal activities of this company. Their address is 1771 Springfield St.



MPLETE DEVILBISS LINE
LVE THE EXACTING FINISHING
EMS OF ALL INDUSTRY....

Spray Equipment for every finishing requirement.

Exhaust Systems in all types and sizes

Air Hose, Fluid Hose and Connections for long useful service.

Quality *in all four..*

AY EQUIPMENT
HAUST SYSTEMS
IR COMPRESSORS
OSE & CONNECTIONS

DEVILBISS HINTS... on Finer Finishing

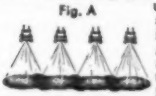
To get the most out of an automatic spray machine the user should do these two things. First, he should take advantage of the manufacturer's instructions. They are based on time-tried and proved engineering and will save the user from expensive tinkering. Second, he should carefully train at least one responsible person in the operation and care of this valuable production device. This man or men should understand how the machine works and how to keep it functioning with unvarying constancy. Some one with ingenuity will quickly discover new, additional uses for this automatic method.

The purpose of the automatic machine is to eliminate the human variables in high production spray work. To neglect to control the established production standard of material, viscosity, temperature, and cleanliness is to throw away the advantages of flawless, mechanical uniformity. These variables must be kept constant. This means that the same material must always be used at the same viscosity and temperature. Allowing the guns to become dirty and clogged introduces a new factor which will bring a different result from the one established for standard production.

As an aid to controlling these variables, a log should be carefully kept recording all these factors at their maximum efficiency. Then in following runs, the same high standard of performance should be duplicated in every detail. This includes such variables as spray gun air caps and tips and their adjustments, spacing and angles at which they are directed on the surface, atomizing and fluid pressures, materials and their viscosities, as well as traveling speeds of the guns and the conveyor.

One of the most common mistakes made on a traversing gun machine is setting up the spray guns as shown at A in the illustration. The guns should not be arranged so that their individual patterns are joined end to end. This creates an air turbulence at the junctions of the connecting patterns. The result is streaking across the work. The correct echelon of gun patterns is shown at B. Here the guns are adjusted on the carriage so that the patterns are staggered for overlapping without turbulence. It is possible, however, to angle one or more guns in such a manner that contoured surfaces may be coated uniformly and economically.

Fig. A



Turbulence at Junctions Flares Pattern and Causes Streaks.

Fig. B

Staggered Pattern avoids Turbulence and Applies Even Coat.

Using the velvet covered edge of a wood tip to transfer metal leaf from the leaf board to the prepared surface of frame.

GOLD and METAL LEAF APPLIED to FINE FRAMES

How foundation materials are mixed. How surfaces are prepared. Methods of laying gold and metal leaf. Specialty finishes on metal leafed frames.

By P. C. BARDIN

MEN WHO WORK in gold at Newcomb-Macklin Co., Chicago, are artisans. Their work is the symbol of the highest expression in all of the arts. I could not begin to give a detailed account of all of the various steps required to produce the numerous effects in decorative gold finishes on fine frames. Therefore, for purposes of clarity and simplicity, this article will deal only with foundation coatings, and laying of gold and metal leaf.

Surface preparation for both gold and metal leaf is basically the same. Three materials are required for foundation coats, glue size, whiting coating and gilders clay. How these materials are

mixed and applied often determines the success of the leafing operation and the quality of the finished frames.

Preparing the Glue Size

First, a glue stock is prepared by placing ground animal glue in a container with just enough water to cover the glue. This is allowed to soak for several hours, after which it is heated inside a large container partially filled with water. In this manner the flame will not directly contact and burn the glue. About two parts of water to one part of glue is added, and it is heated until the glue melts but does not boil. From this a glue size is made by mixing approximately three parts of hot water to one part of glue stock. The exact quantities may be definitely established by spraying glue size hot on the wood. If the film peels, crazes, or may be scraped off when dry, additional hot water should be added.

Proper Mixing of Whiting

Two parts of water, one part glue and enough gilders whiting (bolted) are combined so that the mixture after boiling will have the consistency of syrup. This is strained through cheesecloth. Then about one half pint of boiled linseed oil to one gallon of mixture is added. The oil stabilizes the body and promotes free flowing. Finally this mixture is heated almost to the boiling point, stirring thoroughly all the while. Care should be used not to heat the mixture too much or too long as this has a tendency to thicken it. If this occurs it may be thinned with glue size.

How Gilders Clay Is Prepared

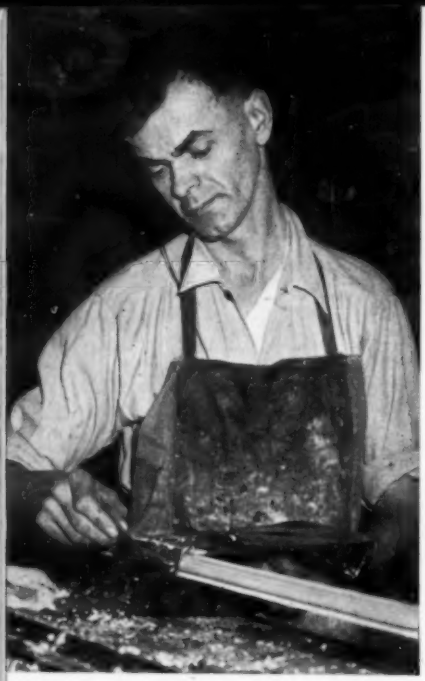
Two principal colors of gilders clay are used, red and yellow. The effect desired for the finished product determines which color of clay will be used. Preparation of the clay is identical regardless of color. Dry clay is mixed with water to make a thick paste. The next step is to add equal parts of glue size and warm water. The water is mixed with the clay paste, heated and stirred until the mixture is of the consistency of heavy paint. One half pint of alcohol is added to one gallon of mixture. The alcohol prevents the mixture from thickening, and has a tendency to make the clay light and airy. This is highly desirable. If the clay foams and bubbles after it is sprayed on the surface, a little more alcohol should be added.

Only Simple Tools Required for Gilding

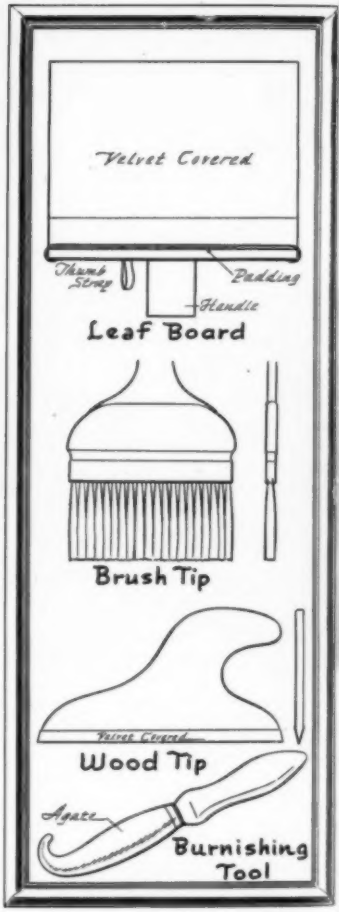
Gilders tools are very simple. They include a leaf-board 5/16-in. thick, 6-in. wide and 10-in. long, made of basswood or yellow poplar, padded slightly on top and covered with a dark colored velvet with a thumb loop and handle underneath. Dark colored velvet is desirable to contrast with the leaf. The gilder uses this board much the same as an artist uses his pallette.

There are two types of tips. The wooden tip for handling and laying metal leaf is made of 3/16-in. thick basswood or yellow poplar, 6-in. long and 3-in wide. The working edge is beveled two sides to a blunt point and is covered with velvet. The upper part of the tip is shaped for a handle.

The tip used for handling and applying gold leaf is a camel hair brush approximately 1/8-in. thick, 3 3/4-in. wide with tufts of hair about 3-in. long. A set of six or eight camel hair brushes, some flat, some round, ranging in size



Laying gold leaf with brush tip. Other camel hair brushes will be used to smooth the leaf onto the moulded surface. All particles of leaf on the bench are carefully salvaged for processing into gold leaf.



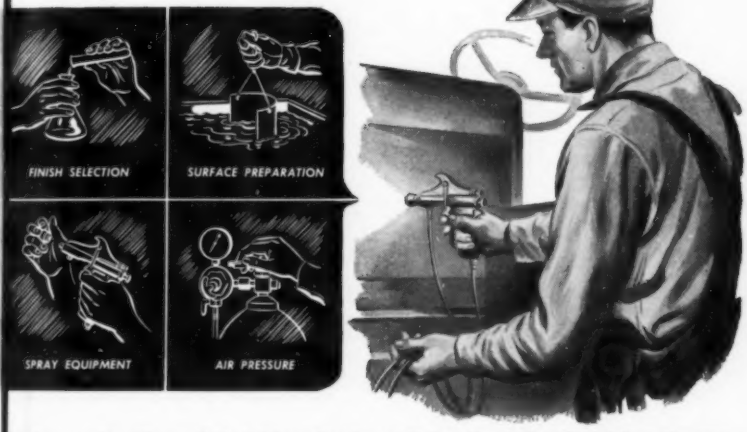
from 1/2-in. to 1-in., are required for brushing on alcohol and water mixture and for adhering gold leaf to the surface. Finally a horn shaped, agate burnishing tool. This tool is used for burnishing gold leaf.

How Surface Is Prepared to Receive Gold Leaf

For convenience, let us consider step by step operations required for gold leafing a picture frame. The wood surface must be smooth to begin with. A spray coat of glue size is applied, allowed to dry, and lightly sanded with 3/0 sandpaper. After dusting, a coat of whiting is sprayed on. When dry, this is lightly sanded with 4/0 sandpaper. Again the surface is dusted and a second coat of whiting is sprayed on, dried and sanded.

This is followed by two spray coats of either red or yellow gilders clay depending upon the

Little things that led to *Big Finishing Improvements!*



he Lowe Brothers "Finishing Engineer" Studied the Finishing Opera-ion of This MACHINERY MANUFACTURER With Important Results!

addition to recommending the right ish for your product, the Lowe Broth-s "Finishing Engineer" may be able to lp you further by studying your entire nishing operation down to the smallest tail and suggesting improvements.

Our "Finishing Engineer" recently lped a large eastern manufacturer. After reful study of their finishing methods, suggested four minor changes that eatly increased production and pproved the quality of the finish.

These suggestions involved a reduction in the viscosity of the enamel, an alternate cleaning method, a gun adjustment and a reduction in air pressure.

Whether you are a Lowe Brothers customer or not, the "Finishing Engineer" will be glad to study your operation without cost or obligation. Write the Lowe Brothers Company, Dayton, Ohio.

Lowe Brothers
FINISHES FOR INDUSTRY

type of finish required. About 30 minutes drying time is allowed between coats. As a rule, the second coat of clay is thinned slightly. After air drying about 15 minutes, a soft rag is used to burnish the clayed surfaces, followed by two coats of orange shellac. Thirty minutes drying time is allowed between coats. The frame is then allowed to dry overnight, after which it is ready for application of gold leaf. It is important not to touch the surface to be gold leafed, otherwise the leaf will not adhere to the finger marks.

How Gold Leaf Is Applied

For protection and ease of handling gold leaf 3 3/8-in. by 3 3/8-in. No. XX comes 20 leaves in a book. Each leaf is contained between sheets of tissue paper. Holding the leaf board in one hand, the gilder, using the brush tip, lightly passes the camel-hair brush over his cheek where the brush picks up just enough oil from the skin to cause the thin gold leaf to adhere or cling to the tip. He deposits the leaf on the velvet covered surface of the leaf board, and, using a steel spatula, cuts the leaf into two or more sections depending upon the width of the frame to be leafed. Then, using a brush of suitable width, he applies a coat of 1-part pure grain alcohol to 2-parts water to the frame surface. Care must be used not to apply too much of this mixture so that the alcohol and water will not run, and to cover only the space to which the leaf will be immediately applied. Again using the brush tip, after lightly brushing his cheek, the gilder quickly picks up a section of leaf and deftly places it on the surface wet with alcohol and water. The brush tip is used to smooth out the leaf. If a large air bubble should occur under the leaf, a dry camel hair brush of suitable size is used to smooth out the leaf.

The operation continues in this manner, each gold leaf overlapping the preceding leaf until the frame is completely gilded. Gold leaf just applied cannot be touched with the fingers for it will adhere and come off. The gilded frame is allowed to dry from 12 to 18 hours before it is burnished, if that is required.

Burnishing is done by lightly but briskly rubbing the agate burnishing tool over the gold leaf. This operation imparts a wonderful sheen to the gold. No protective coat is required for genuine gold leaf as is necessary for metal leaf. Gold leaf will not oxidize when exposed to the air.

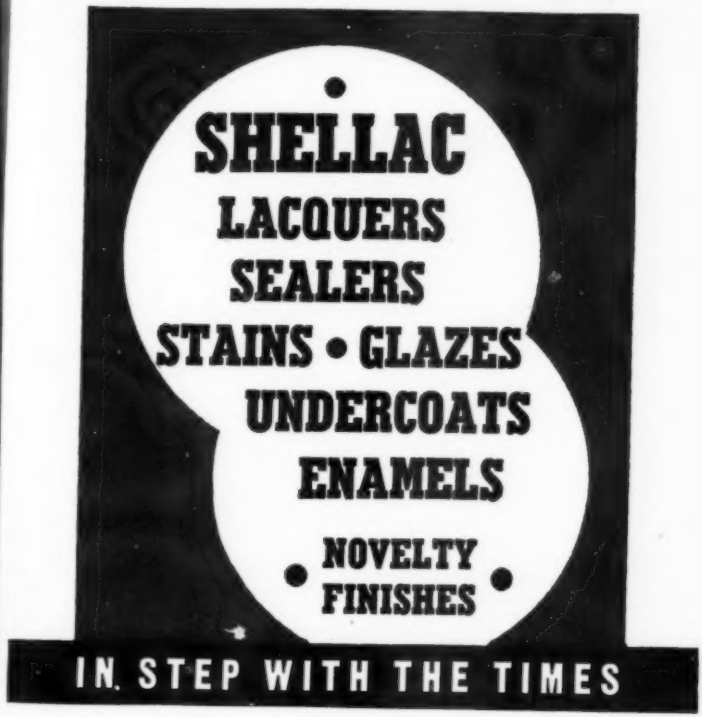
Frames having composition ornaments which are to be highlighted by burnishing may require two and sometimes three applications of gold leaf over the ornamented areas. Each layer of gold leaf is applied as described above, and after the final leaf is laid, burnishing is done in the same manner.

Different Surface Preparation for Applying Metal Leaf

Preparation of the wood frame for application of metal leaf is identical to that described for gold leaf up to and including the two coats or orange shellac. Metal leaf is relatively much thicker than gold leaf, therefore requires a different type of adherent than gold leaf.

After the second coat of orange shellac has thoroughly dried, the frame is given a coat of metal leaf oil. This is a mixture of 5 parts turpentine to one part of oil with about three drops of japan drier added.

(Continued on page 42)



IN STEP WITH THE TIMES

Industrial Finishes

that make the most of available raw materials to give you greatest durability, together with attractive appearance and economy.

• FOR APPLICATION BY ALL METHODS

JAMES B. DAY & CO., CHICAGO

After spraying this oil, the frame is allowed to air dry for about 15 minutes, then using a cheesecloth pad saturated with the same oil mixture and wrung out well, the surface of the frame is wiped thoroughly to remove all excess oil. If this is not done the surface will remain thick and elastic, allowing the leaf (when laid) to slide around in handling, and to flake off. The only way to obtain a thin, hard tacky surface is by careful wiping. The oiled frame is allowed to stand overnight to obtain the proper degree of tackiness.

Metal leaf 5-in. by 5-in. usually comes 25 leaves to the book. Holding the leaf board in one hand, the gilder places the wood tip across a leaf and blows lightly on the leaf which causes it to fold up and over the tip. Clinging to the velvet covered edge, he transfers it to the leaf board. It is then cut into sections of appropriate width for the frame. Blowing on the section of cut leaf, the gilder picks up the folded metal leaf with the wood tip and transfers it to the tacky surface of the frame. The velvet covered edge of the wood tip is used to smooth on the metal leaf on flat and rounded surfaces, while the heel and toe of the wood tip is used to press the metal leaf down into composition ornaments. For small, shallow depressions in ornaments, or on a stippled surface, a soft cheesecloth pad is used to pounce the leaf down. It is essential that the metal leaf be pressed firmly to the entire area of the tacky surface.

Protective Coating Is Needed for Metal Leaf

The leafed surface is given a brush coat of orange shellac for gold metal leaf and white shellac for silver metal leaf. This coat air dries in 30 minutes. Then the entire frame is given a spray coat of banana oil to protect the metal leaf. This is allowed to dry 30 minutes. From this point on, further procedure depends upon the finish effect desired. Some frames require various colors on ornamented sections. This is brushed on, dried overnight and followed by a glaze coat of varying shades of brown, green, etc., oil colors dissolved in turpentine. This is sprayed over the frame, then wiped off the highlights. When dry, the frame is given a spray coat of clear lacquer to protect colors and glazes.

Specialty Finishes on Metal Leafed Frames

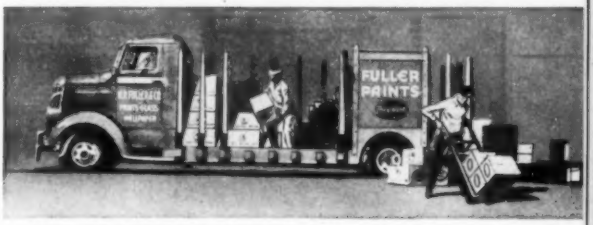
To produce a white gold frame, silver leaf is applied over which two coats of pigmented lacquer is sprayed. The lacquer has sufficient transparency to allow the silver to show through, producing a white gold effect.

There is no limit to the number of finishes possible through the use of aluminum, brass, copper and silver metal leaf combined with color, glaze and wiped effects. For real beauty and fineness, nothing can compare to genuine gold leaf. But in all operations, from leafing to highlighting, care and experience are highly essential. The real art of working in gold cannot be learned from a book. It is gained only through long experience.

Operators of new plants stop here. What about the floors in some of the older plants? Cracks in concrete can be repaired; wood floors can be resurfaced. If this is done, material can be moved faster and with greater ease.

G ENOUGH to do it—

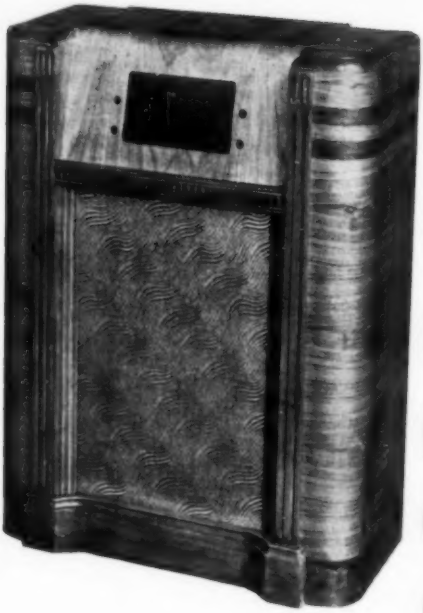
PABLE ENOUGH to do it right—



AR ENOUGH to do it without delay—

Fuller stands *by* its customer by standing *back* of its products. That's policy! —made effective by laboratories and factories amply manned by experienced technicians. Our technical staff is large enough to keep abreast of normal Western needs, yet specialize on difficult individual finishing problems. Western production finishers get Fuller service promptly because Fuller is "next door" throughout the West. W. P. Fuller & Co., Industrial Finishes Division, San Francisco 19, California.

Products of FULLER-NASON *Research*



Radio Cabinets Finished On and Off Conveyors

By J. B. BURK, *Finishing Foreman*

THE PROBLEM, as presented to our engineering and production departments, was to economically finish large console, radio-phonograph table models, table size and midget cabinets in combination woods, two tone with bands and inlay, and plain walnut.

The equipment includes a stain-filler-glaze overhead monorail conveyor 1026-ft. long, a sealer top-coat conveyor, same type, 1734-ft. long, both of which are operated at 13-ft. per minute, a horizontal slat conveyor 139-ft. long which operates entirely in the filler oven at a speed of 1½-ft. per minute, and a horizontal belt; rub and polish conveyor 150-ft. long, operating at a speed of 3-ft. per minute. There are two single spray booths and four double width booths.

The Adler Manufacturing Co., subsidiary of Sears Roebuck Co., step by step method of finishing radio cabinets on conveyor lines, also necessary off-conveyor operations.

Reasons for Off-conveyor Operations

There would be no problem if all models were in plain walnut, and required an ordinary on-conveyor finish. I shall explain the solution to the problem of finishing a wide variety of models including the walnut console shown at the beginning of this article. This has a dark toned base and two dark-toned parallel bands near the top. Each is bordered by vein lines (maple inlay) and the finishing of these bands, the base moulding, fluted pilasters and horizontal divider at the front necessitates many off-conveyor operations.

Finishing Operations Start on Second Floor

Finishing actually starts on the second floor. Here a NGR stain is applied to sap streaks by hand just before cabinets are placed on carriers suspended from the conveyor. Fill-ins from the bank of various models prevent any empty carriers going up to the third floor where the main finishing room is

At left: Infeed end of filler oven. Cabinets removed from line at right for minor repairs. Notice replaceable fiberboard sleeves on carrier frames to catch overspray and promote cleaniness.

At right: First top coat booth No. 5 looking toward entrance to lacquer oven. Note double deck carrier for radio-phonograph table models, table size and midget models. This increases productive capacity.

Operator at right is transferring cabinets from filler oven to sealer-top coat conveyor. Looking toward sealer booth No. 3.

located. In double-width booth No. 1, a NGR stain is sprayed on gum parts. All cabinets also receive a spray coat of filler in this booth. Cotton waste is used to pad in filler, followed by rag wipe of all filler stain. In booth No. 2 an oil base equalizing stain is applied after which cabinets dry as they proceed to the filler oven. During this travel time of about 14-minutes, banded console models are removed from the line in order to hand stain the inlay lines bordering the bands of darker wood. This is followed immediately by a rag wipe. Also in this area is an inspection station.

As cabinets are inspected the operator gives them a final wipe and replaces them on the empty carrier. In fact, it is the inspector's duty to see that every carrier is loaded before it leaves his station.

Filler is Force-Dried

At the infeed end of the filler oven, cabinets are removed from the stain-filler-glaze conveyor (which returns to the second floor) and transferred to the horizontal slat conveyor in the filler oven. At this place, cabinets marked for minor repairs are placed along side of the filler oven where this work is done. Cabinets remain in the filler oven 90-minutes at 136° F., with 42% relative humidity.

At the outfeed end of the filler oven cabinets are transferred to the sealer top-coat conveyor where they are allowed to cool 18-minutes before sealer coat is applied in booth No. 3. Sealer air-dries 16-

PROTECTION FOREVER

Lacquer, correctly made, endures.

We have yet to find out how long.

It can be reasonably stated, however, that a lacquer rightly constructed and properly applied will last as long as the piece itself.

It pays to be sure of the quality of the materials you use.

STILLE-YOUNG Chicago

LACQUERS · FILLERS · STAINS · ENAMELS · PAINTS

minutes. In booth No. 4 a tinted lacquer is sprayed on the back and all interior surfaces of the cabinets. Any overspray deposited on the outside surfaces will be removed when sealer is sanded. Just around the corner from this booth there is an inspection station. Cabinets enter sealer oven where they remain 45-minutes at 134° F., with 36% relative humidity. A 15-minute cooling period follows before sealer is sanded. Steel wool is used on mouldings and No. 6/0 sandpaper on flat surfaces. A blow-off and rag wipe follows.

In the section just below the lacquer oven, a final touch-up is made on bands, base and mouldings. Water stain is used for this purpose applied by brush on flat surfaces and by a pad on an edge which is slightly sanded through. Also in this area is inspection and minor repairs. Again it is the inspector's duty to see that all carriers are loaded before they leave his station.

Lacquer Top Coats are Applied and Force-dried

In booth No. 5 the first top coat of clear lacquer (32% solids) is applied followed by a 12-minute flow-out before cabinets enter lacquer oven for one hour at 120° F., and a relative humidity of 40%. The final lacquer coat is applied in booth No. 6. The second lacquer coat is force dried for the same time and at the same temperature as the first top coat.

Cabinets cool one hour, after which they are transferred to the horizontal belt rub and polish conveyor. For rubbing we use No. 360 WOD sandpaper with oil and naphtha mixed 1-part naphtha to 8-parts oil, rubbing compound is padded on with cotton waste. We hand rub all models requiring this finish. Final operations are clean-off, wax polish and inspection before cabinets proceed to the packing room.

Method of Protecting Cabinets And Value of Inspection

All models on which off-conveyor operations are performed are mounted on light weight protective skids to aid in handling and prevent bruises, scuffs and mars. Also you will note than an inspection station is located at each point where off-conveyor operations are done. Frequent inspection pays big dividends in stopping additional labor and material being expended on cabinets that require minor repairs. Even larger dividends accrue in eliminating empty carriers traveling the line. Empty carriers are not only costly, they cut production and destroy the rhythm of all the operations along the line.

Optimus Detergents Appoints Service Man

William C. Thiess, Philadelphia, Penn., has been appointed field service representative by Optimus Detergents Co., Matawan, N. J., manufacturers of industrial cleaning materials. He will cover the Philadelphia and Baltimore areas.

Wm. C. Thiess newly appointed Optimus field service man.

Mr. Thiess has had an extensive experience in the industrial cleaning field, having represented other concerns who supply industrial cleaning materials.

Check these uses for
FUNCTIONAL USES
Used in the auto, airplane, radio, electrical, phonograph, ceramics, furniture and many other industries for surfacing all sorts of materials to provide —
SOUND DEADENING
TEMPERATURE INSULATION
INTEGRAL GASKETS
SHOCK ABSORBING SURFACE
NON-MAR SURFACE
NON-GLARE SURFACE
DECORATIVE USES
Applied in various lengths and colors to wood, paper, cloth, metal, etc., the following effects are produced —
SUEDE LEATHER
FURNITURE UPHOLSTERY
INTERIOR AND DRAPERY FABRICS
VELVET • VELOUR
MOHAIR • CARPET
RAYCO
Flock

Which Can YOUR Product Use?

Applied to cloth, paper, glass, wood, metal, etc., as

SUEDE . MOHAIR . CARPET . VELOUR . VELVET . FELT

INVESTIGATE FLOCK — REQUEST OUR NEW COLOR CARD

Rayon Processing Co. of R. I., Inc.

PIONEER PRODUCERS OF SURFACE COATING FLOCKS

55 Tremont Street **Central Falls, R. I.**

COLONIAL PROCESS SUPPLY CO.
140 W. 23rd St.
New York 11, N. Y.

GRAPHIC ARTS CENTER
908 S. Main St.
Los Angeles 14, Calif.

ATLAS SPEC. MFG. CO.
3255-59 S. Shield Ave.
Chicago 16, Ill.

W. H. HALL
182 Jarvis St.
Toronto, Ontario

Aluminum Paints

Characteristic merits of aluminum paints as fine protective and decorative coatings, with practical notes on what vehicles to use and how much aluminum to mix into each gallon.

By GILBERT C. CLOSE

THE WIDESPREAD use of aluminum pigmented coatings is ample evidence of their value, but few persons are aware of the actual physical phenomena associated with these coatings—the characteristics which are responsible for the high degree of protection afforded under specific service conditions. This information will aid materially in selecting aluminum pigments for applications where their maximum value will be demonstrated.

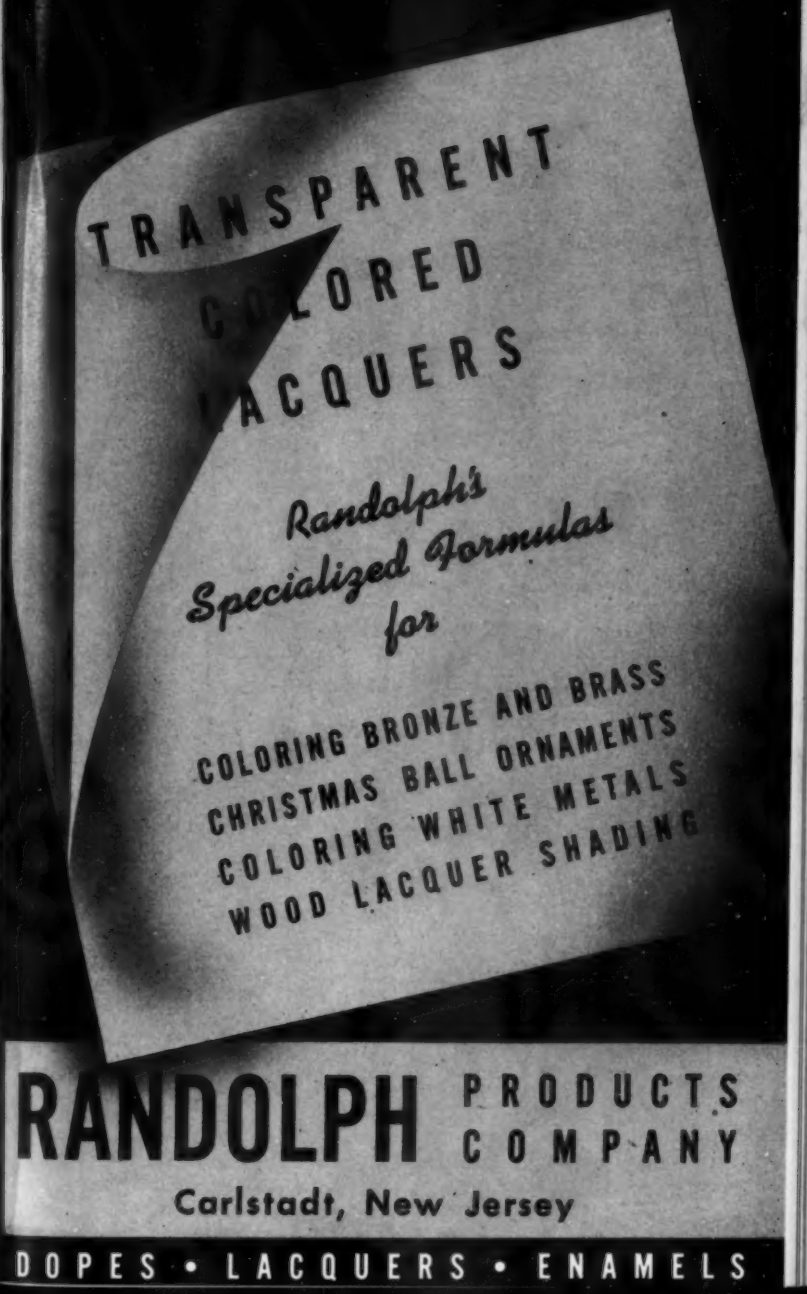
Conventional pigments such as zinc oxide, red lead, white lead, etc., are composed of particles distinctly granular in form, whereas aluminum pigments, due to a special stamping process used in their manufacture, are flake-like in character. Subsequent to stamping, these aluminum flakes are sized through sifting screens. Then they undergo a special polishing process which leaves each flake with a lustrous and brilliant surface. The better grades of aluminum pigments are 325 mesh size or finer.

Leafing Characteristics of Aluminum Flakes

When the polished aluminum powder is mixed with a vehicle such as varnish, a curious phenomenon may be noted. The flakes swirl rapidly during mixing, and those that approach the surface of the liquid are gripped and held there by surface tension. These particles arrange themselves much like fallen tree leaves, forming an almost continuous metallic aluminum film. This action is descriptively termed "leafing" or "plating." When the aluminum finish is applied, the same phenomenon occurs on a much smaller scale. The aluminum flakes rise to the surface of the film and are held there by surface tension until the coating dries.

Herein, then, is one of the basic reasons for the high degree of protection offered by aluminum pigments under certain service conditions. The opacity of an aluminum surface layer effectively protects the underlying organic vehicle from deterioration caused by visible and ultra-violet light. And in protecting the underlying vehicle, the vehicle in turn protects the surface on which it is applied.

The opacity of an aluminum surface film is further abetted by its high reflectiveness which not only turns back harmful light waves but heat waves as well. Aluminum is a slow-weathering metal, therefore considerable time is required to weather away the


TRANSPARENT
COLORED
LACQUERS
Randolph's
Specialized Formulas
for
COLORING BRONZE AND BRASS
CHRISTMAS BALL ORNAMENTS
COLORING WHITE METALS
WOOD LACQUER SHADING
RANDOLPH PRODUCTS COMPANY
Carlstadt, New Jersey
DOPES • LACQUERS • ENAMELS

successive layers of aluminum flakes so that light can influence the chemistry of the underlying organic vehicle.

Varnish, Lacquer and Other Vehicles for Aluminum

Though aluminum powder has been used successfully with quite a wide variety of vehicles, varnish vehicles, including those made with Bakelite and coal tar resins, permit a higher degree of "leafing" or "plating." When lacquer is used as a vehicle, a somewhat duller and less protective film will result. In varnish vehicles, 1½ to 2-lbs. of powder per gallon of vehicle will usually give good results. Too little powder will lower the protective properties of the paint, while too much powder will impair application, resulting usually in a somewhat rough surface. For use with pyroxylin lacquers, ½ to 1¼-lbs. of powder per gallon will give good results.

Many ready-mixed aluminum paints, with satisfactory leafing properties, are now available.* However, unless a paint of this type is used, only enough aluminum pigmented paint for a day's use should be mixed at one time. Furthermore, the paint should be stirred frequently during use to prevent excessive settling of the pigment in the container. When this occurs, there will be a tendency for the pigment content of the paint to increase as the supply is used, resulting in a paint with inferior brushing characteristics and a non-uniform paint coating.

* In regard to this the Chief Chemist of Paint Finishes for a leading manufacturer of aluminum paint says: More and more ready-mixed aluminum paint is being used and we have therefore changed our policy of advising against its use. A ready-mixed product is more convenient to use.

Service Conditions Influence Choice of Finish

When contemplating the use of an aluminum pigmented paint, three service conditions should be investigated: 1) Will the product be exposed to continuous and brilliant sunlight? 2) Will it be exposed to conditions that are severely corrosive to aluminum as a metal? 3) Will the ability of an aluminum coating to reflect rather than absorb heat waves be of value?

Positive answers to questions 1 and 3, and a negative answer to question 2, will indicate an aluminum pigment as one of the best protective mediums currently available. Whether or not a final decorative top coat will be applied is beside the point. A top coating will not impair the protective properties of the aluminum pigment, and aluminum paints offer a satisfactory bonding surface for subsequently applied organic coatings.

Monsanto Establishes Texas Offices

Establishment of a sales office for the State of Texas, with Harvey M. Harker as general branch manager, was announced recently by the Monsanto Chemical Company. Headquarters of the new office, which will handle the company's products other than phosphates and plastics, will be in Houston.

Harker, who was first employed by Monsanto in 1918 as an assistant plant manager, rejoined the company in 1926 as director of purchases. He has been assistant general sales manager of the Organic Chemicals Division, at St. Louis, since 1931. Harker is a native of Argyle, Wis., and is a chemical engineering graduate of the University of Wisconsin.

Assisting Harker at the new sales office will be Kenneth O'Connor, who will be in charge of office operation. O'Connor, who attended the Missouri Institute of Accounting and Law, joined Monsanto in 1942 as a member of the Organic Chemicals Division order department.

A BUYING GUIDE FOR ABRASIVES

Point No. 7

SATISFIED USERS

When satisfied customers are the yardstick by which a concern is evaluated, The Carborundum Company measures up well. During the many years it has supplied abrasive tools to industry . . . the opinions, needs and viewpoints of those it serves have been deeply respected. The results of this policy are reflected in the high regard in which the name CARBORUNDUM is held by users of abrasives.

There's a certain feeling of satisfaction in doing business with a concern on this high level of helpful cooperation. It is often expressed in the stated preference for services and abrasive products by CARBORUNDUM.

The Carborundum Company, Niagara Falls, New York.

CARBORUNDUM

TRADE MARK

BONDED ABRASIVES
COATED ABRASIVES
ABRASIVE GRAINS AND FINISHING COMPOUNDS

Specialized wheels by CARBORUNDUM

Diamond wheel for tool sharpening

Cool-cutting grain grit wheels for

A coated abrasive for every

DECALS *Applied in Mass Production*

DECALS are generally used for ornamentation, identification or utility. They are often used for a combination of the last two. Also, there seems to be no limit to the types of material, nor the contour of the surface on which decals may be applied.

I have selected for discussion two of our products which present the greatest difficulties so far as applying decals is concerned, and by comparison, a third product which is perhaps the simplest.

Decals for Automobile Oil Filters

Let us consider first the oil bath filter. These filters are used to clean the air entering the carburetor of an automobile engine. They have a gloss black, baked japan finish. The decal contains printed instructions, also the manufacturers name and identifying trademark. This decal must remain intact and legible for the life of the car. The surface on which the decal is applied is curved (6-in. radius), also it has a rounded offset, there being about ¼-in. difference between the two levels. The decal must withstand gasoline fumes, alcohol fumes (used for anti freeze) grease and dust and still stick to the finished metal surface. Anything short of a good application job would be worse than useless.

How Decals Are Prepared

After filters are assembled and inspected, any touch-up work necessary is done in a convenient

BY C. F. NEWBURG

General Superintendent of United Specialities Co., Chicago,

explains and compares methods of handling and applying decals to difficult and simple surfaces, all on a mass production basis

bench-high spray booth. Twelve filters are then placed in the wood track, each with the clamp stud in an upright position. This is done to properly locate the decal on the filter. Decals for this job come three to a card. A bundle of 100 cards tied loosely with a string is placed in a container filled with a mixture of 7-parts water to one part wetting agent for five minutes.

Upon removal, the string is cut and the cards are placed on and under a cloth saturated with the same solution. With the twelve filters in correct position in the wood track, an operator, using a cloth pad dipped in a bonding cement having a varnish base, applies this to the surface area to receive the decal. By the time it has reached the end of the line, the surface of the first filter is tacky enough to receive the decal. The operator picks up four cards (12 decals), from under the wet cloth and proceeds to slide a decal off the card onto cemented area.

A second operator follows immediately using a dry cloth to press the decal firmly in place, pressing from the center to the outside edges with a double stroke. Care must be used to see that the decal is firmly and smoothly attached to the entire surface, especially on the rounded offset where wrinkling is likely to occur. She is followed immediately by the

Applying decals on large oil bath filters. Touch-up booth at upper left. Packing cartons at right for filters. Three-operator crew handles each production line.

Applying decals on small size oil bath filter. Two-operator crew applies body decal, another two-operator crew applies top decal. Assist operator and packer not shown.

first operator who wipes off excess cement surrounding the decal, using a rag saturated with cement remover for this purpose. Filters are then removed from the track, wrapped and packed. Three operators work as a team, turning filters into correct position, applying cement, adhering decals, wiping and packing. Production on this line is 4800 filters per 8-hour shift.

Method of Applying Two Decals on Small Filter

Next let us consider the small size oil bath filter. This receives two decals, one on the top, another on the body. The finish on this filter is the same as the large filter and decals are applied in much the same manner. Being smaller, these filters are worked on in lots of 25. A raised arrow indicator provides the key to the correct location for the decal on the body of the filter, and top decal is placed directly in line with it.

The decal on top is the most difficult to successfully apply. The surface on which it is adhered is on a 2-in. radius around the top, and a 1-in. radius from the center of the filter to the edge. In other words, it is a double curve. The decal is made on a 2-in radius, and the same general methods of procedure are followed except the solution in which these decals are placed to release them from cards, is mixed equal parts water and wetting agent.

These decals remain in this solution as long as possible before application, just so they do not float off the cards. This is done to soften the decal to a point which will compensate for the double curve and the extremely short radii. Being very soft, extreme care must be used in pressing the decal to the double curved surface

38 YEARS AGO
ECLIPSE MADE
GOOD
SPRAY GUNS

AND HAS CONTINUED
TO MAKE
BETTER
SPRAY GUNS

TODAY ECLIPSE IS
MAKING THE
BEST
SPRAY GUNS
WE HAVE EVER PRODUCED

Have you seen our latest in operation?

- Greater gloss and speed
- Material and power savings
- Cleaner work

New Bulletin just off the press is yours for the asking

ECLIPSE AIR BRUSH CO.
392 Park Avenue Newark 7, N. J.

ECLIPSE

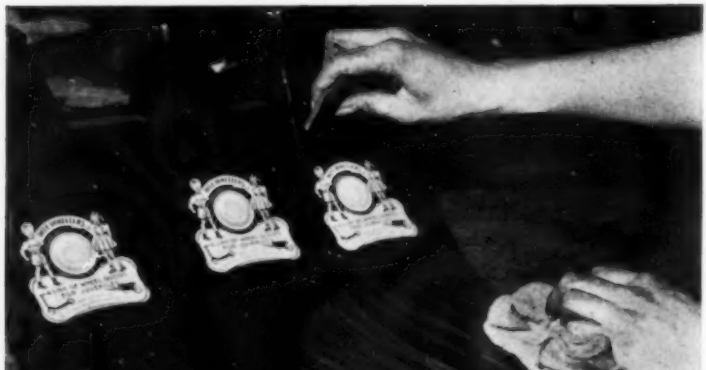
to prevent wrinkling or tearing. Of course, no wrinkling can be permitted as this would cause the decal to harden and chip off. Two operators work as a team on body decals, and two on top decals. Another operator assists in placing in correct position 25 filters on a fiberboard panel for application of top decal. Another operator wraps and packs in cartons. A crew of six apply decals and pack 5200 filters per 8-hour shift. This means that four operators apply 1300 decals per hour.

Different Methods Used on Children's Scooters

Now for the sake of comparison, let us consider the application of decals on children's scooters. These decals are used for identification, advertising, and to present an attractive appearance. Even though it is located above the footboard of the scooter body, these decals can only serve a temporary purpose, considering the treatment they will receive from the average boy or girl.

Another factor which makes this application different from that of the oil bath filter is the 24-in. radius of the surface where the decal is to be placed. The scooter body is finished in synthetic baked enamel.

For all of these reasons, the procedure is much simpler than that required for oil bath filters, consequently production is much greater. Decals are soaked for about five minutes (in loosely tied bundles) in lukewarm water, no wetting agent added. With scooter bodies lined up on a table, the operator slides the decal from the card onto the scooter, and centers it. Then, using a rubber squeegee in one hand smooths the decal from center to top and from center to bottom to remove air and water. This is followed up with a cloth to lightly wipe the decal and sur-



Applying decals on scooter bodies. It's a fast operation with the rubber squeegee in right hand and cloth in left, three motions and the decal is adhered.

Now . . . a single *Bonderite* line can treat your Steel, Zinc, and Aluminum Production

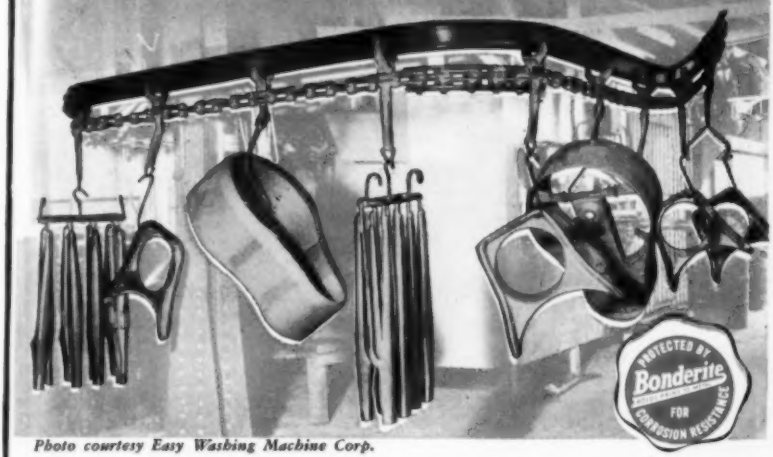


Photo courtesy Easy Washing Machine Corp.

Here's news for manufacturers whose production metals are mixed. Now you can process parts of steel, zinc, aluminum, and their alloys on the same Bonderizing line, at the same time, and get high-quality, uniform, fine finish protection for all!

On all these metals, Bonderizing creates a crystalline, nonmetallic paint base on which the finish anchors itself against peeling and flaking. Bonderizing, integral with the metals themselves, effectively retards rust and corrosion.

With Bonderizing, fine finishes look better longer.

Investigate this simple, economical, effective means of finish protection for *your* products.

Write for full information today!

PARKER PROCESSES

PARKER RUST PROOF COMPANY, 2176 East Milwaukee Ave., Detroit 11, Michigan

Bonderite, Parco, Parco Lubrite—Reg. U. S. Pat Off.

BONDERIZING Holds Paint to Metal | PARKERIZING Inhibits Rust | PARCO LUBRIZING Retards Wear on Friction Surfaces

PARKER PRODUCTS CONQUER RUST

rounding surface dry. Scooters are then ready for wrapping and packing. Two operators working as a team apply 4000 decals per 8-hour shift.

I might add that the application of decals on scooters and wheelbarrows provide an excellent training school for operators where they acquire speed, rhythm and deftness so necessary for high speed production in applying decals designed for utility.

P. P. G. Co. Appoints Executives

Three executive appointments in the paint division of Pittsburgh Plate Glass Company have been announced by Harry B. Higgins, president of the firm.

Paul R. Croll has been named assistant to the vice president in charge of the paint division. In addition, he will have overall responsibility for manufacturing operations of the various branches of the division.

Paul R. Croll, named assistant to vice-pres't. in charge of paint division.

Associated with the company's paint division since 1922, Mr. Croll joined the firm as research director with headquarters at Milwaukee, Wis. In 1940, he was appointed technical assistant to the vice president and transferred to the company's general offices at Pittsburgh, Pa.

A graduate of the University of Illinois, Mr. Croll is a member of the American Chemical Society, American Institute of Chemical Engineering, and the American Society for Testing Materials.

Dr. William H. Lycan, formerly director of paint division research with headquarters at Milwaukee, has been appointed executive director of research with offices at Pittsburgh. He will have jurisdiction over all paint division research, new product development, promotion and marketing.

Dr. Wm. H. Lycan, recently appointed director of research.

Dr. Lycan held a Pittsburgh Plate fellowship at the Mellon Institute in Pittsburgh prior to joining the firm's glass division in 1938. In 1940, he was appointed director of research for the paint division.

Dr. Howard L. Gerhart, staff chemist at the Milwaukee research laboratory since 1937, has been appointed director of research for the paint division with headquarters at Milwaukee.

Busker Joins Hilo

David Busker, formerly with the Celluloisic Products Division of Roxalin Flexible Finishes, Inc., Elizabeth, N. J., and the Paint and Bituminous Section of the National Bureau of Standards, Washington, D. C., has joined the Research and Development Staff of Hilo Varnish Corporation, 42 Stewart Avenue, Brooklyn, N. Y.

Mr. Busker is a group leader in charge of organizing and conducting research and development in all phases of furniture finishes.

National Metal Congress to Meet in Chicago

The 29th Annual National Metal Congress and Exposition will be held in Chicago's International Amphitheatre for seven days beginning Saturday, October 18th.

W. H. Eisenman, national secretary of the American Society for Metals, and managing director of the Exposition, announced locale and dates and stated that the Exposition will again be sponsored by the American Society for Metals.

Today's Bargain Finish!

Berry Brothers

RUFKAST

(WRINKLE)

If it's made of metal, Berry Brothers RUFKAST is the finish for it! And it's readily available.

RUFKAST fits right in with today's cost-reduction thinking.

- **Low in material cost**
- **1-coat operation**
- **Fast, low-cost production**

RUFKAST is a highly perfected wrinkle finish, uniform in pattern (large, medium or fine). One coat hides metal defects. Especially desirable for office appliances because it eliminates light reflections and eye glare.

Sample panels and further information may be had promptly on request.

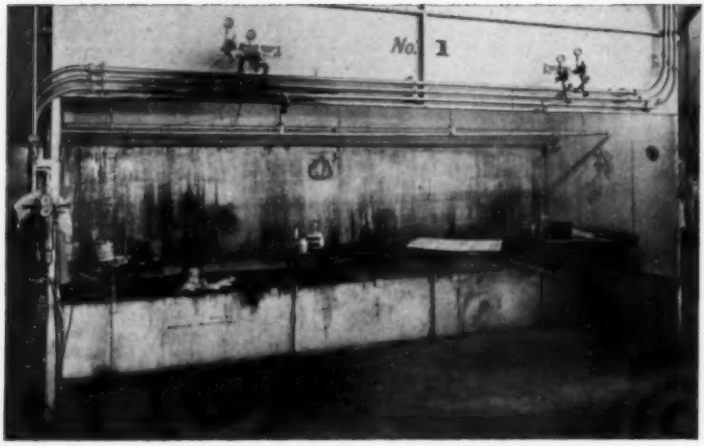
BERRY BROTHERS

Paints · Varnishes · Enamels · Lacquers

Detroit 7, Mich. Walkerville, Ont.

BOSTON · JERSEY CITY · CINCINNATI · CHICAGO · ST. LOUIS
INGLEWOOD, CALIF. · MONTREAL · WINNIPEG · TORONTO

Quality Finishes Since 1858



Compounds for Wet and Dry Spray Booths

BY JOHN CAWEIN

ONE OF THE chief reasons for using spray booth compounds is to promote cleanliness in the finishing room. A clean plant is not accidental, it must be planned for, and requires constant work and attention to maintain. But it pays off in higher type employees, better quality in work, greater production, and reduction in fire hazard. Therefore it is desirable.

Chemicals for use in spray booths may be divided into two general groups: 1) operating compound for water curtain booths, 2) booth coating for dry booths. The purpose of the compound in either case is to control overspray so that it may be collected, and easily removed for either salvage or disposal.

Types of Compound

Compounds for water curtain spray booths may be divided into four general classifications, based upon the type of material being sprayed. 1) lacquer, 2) material having synthetic baking oils and solvents such as VM & P naphtha, toluol, and alcohols with plasticisers added, 3) standard material with substitute drying oils such as peanut or soybean oil, and solvents such as naphtha, xylol, diluents, and alcohols, 4) standard material using drying oils such as

DSM SPECIAL MOTOR WASHING MACHINE

MODEL BD-1309

MOTOR CLEANING EQUIPMENT: *Washing machines for cleaning tear-downs. Kerosene spray or similar solvent usually used as the cleaning medium.*

A	Width (Working Clearance)	44"		
B	Height (Working Clearance)	24"		
C	Width Over All	65"		
D	Length Over All	26'8"		
E	Height Over All	8'0"		
G	Wash Pump Capacity, G.P.M.	450		
	Motor Speed R.P.M.	1750		
	Motor H.P.	15		
	Wash Tank Capacity, Gals.	750		

PLANT ENGINEERING: *Consulting assistance in plant layout to coordinate departmental operations, our experience dated from 1917 in this field.*

Such plant layout may be based on increasing production beyond present capacity, or it may be a rearrangement in this post-war period when operations are conducted under a new set of conditions.

FORMED COWLINGS, PANELS, ETC.: *To your specification, and of light metal alloys as required. Weldments and brazed assemblies may be under controlled atmosphere.*

PILOT EQUIPMENT: *Sample size equipment for development of heavy equipment.*

VERTICAL CORE BAKING MACHINES • CONTINUOUS HORIZONTAL BAKING OVENS • BATCH TYPE CABINET OVENS • DRAWER OVENS

DETROIT SHEET METAL WORKS, 1301 OAKMAN BOULEVARD, DETROIT 6, MICHIGAN

DETROIT SHEET METAL WORKS

DETROIT - 6 - MICHIGAN

tung oil and linseed oil, and solvents VM & P naphtha, turpentine, mineral spirits, or any other slow drying solvents.

Operating Compounds for Wet Booths

First, let us consider compounds used in water curtain booths. In this case the compound is introduced into the water, approximately 10-oz. of compound to 100 gallons of water. One type of compound available produces a foam on top of the water by which the strength of the solution is indicated. When spray guns are operating, thickness of the foam is reduced; when guns are stopped, foam thickness increases. If the solution is of correct strength, the thickness of foam when spray guns are operating should be from 1-in. to 3-in. thick. Correct solution strength may be constantly maintained by observing foam thickness and adding compound only when foam thickness drops below one inch when spray guns are operating.

The action of the compound is to float sludge and remove stickiness of the sludge without destroying it. If the particles of overspray are burned by caustics in the compound, these particles will become abrasive and will cause excessive wear of pump parts. A correct compound for the type of material being sprayed will remove drying oils from the surface of particles of overspray without removing the oils from the center. It may be necessary to reduce the surface tension in the water by adding a wetting agent plus an emulsifier so that particles of overspray will be held in suspension while the compound is removing the surface oils.

Method of Testing Sludge

To determine if the compound is properly treating the sludge, a test may be made by picking up a handful of sludge, squeeze the water out, and if the residue sticks to the hand, the particle surfaces are not being correctly dried. If it powders, it is burned up, indicating too much compound is being used in solution. If the residue forms a putty-like ball which neither sticks to the hand nor crumbles, correct treatment is indicated.

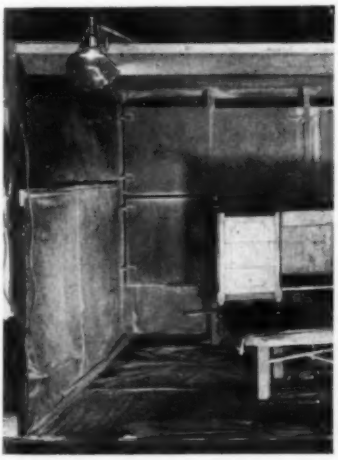
Very few manufacturers are acquainted with the formulation of the lacquers or enamels they are using, hence it would be most difficult to select the correct compound. Samples of the various materials being sprayed, together with full information on volume used in a given period, size of booths, total gallons of water to be treated and a sample of the available water should be sent to the compound supplier for his recommendations. It is only by this means that one can be sure good results will accrue.

During heavy and constant spraying with synthetics, some of the over-spray may break through the water curtain and deposit itself on the steel back of the booth. This may be easily removed with an ordinary floor broom immediately after the water is turned off, and the film is still wet. The deposit on the steel behind the water curtain should not exceed 1/32-in. If this deposit is not removed while wet, drying oils in the center of particles will gradually work out to the surface causing the particles to stick to the steel. When they become dry, it will be necessary to use a scraper or chisel to remove them.

(Continued on page 71)

Salvaging Sludge

Cleanliness is not the only purpose for which compounds are used. In the case of a water curtain booth, sludge treated through the use of the proper amount of correct compound, may be removed from the collecting pan and sold for salvage purposes. For example. by actual test, 55-gallons of white synthetic enamel at 30-second viscosity (Zahn No. 2 cup) was sprayed under 20-lb. material pressure, 50-lb. atomizing pressure, through a fixed gun 40-in. away from, and directed against the water curtain. When the sludge was collected and reclaimed to the same viscosity as the material originally sprayed, 48-gallons of reclaimed paint was obtained. It was estimated that approximately 3-gallons of overspray was deposited on the dry parts of the booth.



What not to do! Paper covered spray booth walls and floor form a dangerous fire hazard.

Compounds for Coating Dry Booths

Compounds for use in dry spray booths must be formulated so that when the inside surface of the booth is coated with the compound, it will present a sufficiently firm surface to prevent overspray from going through the film and sticking on the steel. At the same time, the compound must remain sufficiently viscous to permit easy removal of the compound and overspray. The coating should be heavy enough to prevent overspray from penetrating the compound. Should this occur, it will harden on the steel and have to be chiseled off. In so doing, an ensuing spark may be the means of starting a disastrous fire.

Of course, in the case of dry spray booths, there are no salvage possibilities of sludge being removed from the booth. Compound laden with overspray should be disposed of immediately, not kept in containers in the finishing room.

Reducing Fire Hazard

Coating compounds for dry spray booths are not inflammable —they are water soluble. Therein lies another reason (other than cleanliness) for the use of compounds instead of makeshift coverings for protection of dry spray booths. Kraft paper or newspaper held on by grease or masking tape, and then covered with cup grease will catch and hold the overspray. However, the combination of paper, grease and overspray is highly inflammable. The same thing may be said for any kind of ordinary cup grease applied directly to the inside surface of the booth. The saving may not be worth the price.

Several concerns manufacture and sell spray booth coatings which are sprayed on the inside

of spray booths to catch the overspray. When this coating becomes covered with overspray, it can be easily peeled off and another film of the coating sprayed on. This eliminates the fire hazard which is present when paper and cup grease are used.

DuPont Transfers Salesmen

Supplee E. Farquhar, Jr., of the Finishes Division of the DuPont Company has been transferred from Wilmington, Del., to the Cleveland, Ohio, district as an industrial salesman.

Born 34 years ago in Philadelphia, Mr. Farquhar was graduated from West Philadelphia High School and studied chemical engineering at the University of Pennsylvania. He started to work for the Du Pont Company 14 years ago, in the Philadelphia sales office. After eight years of experience there, he was transferred to the head office at Wilmington.

S. E. Farquhar, Jr., now DuPont Cleveland sales representative.

In May, 1942, Mr. Farquhar began his military service as a private in the Army. He spent 30 months with the Eighth Airforce in England, being assigned to the personnel section. When he returned to the United States he held the rank of captain.

Mr. Farquhar returned to the Du Pont Company as an assistant to the Industrial Sales Manager in April, 1946, and was in that position until his recent transfer to the Cleveland district, working out of Columbus, O.

Edgar S. Wilson, Jr., of the Industrial Sales Section of the Finishes Division of the Du Pont Company has been transferred to Cincinnati, Ohio, as an industrial salesman. He had been stationed at Cleveland as a field service engineer since his discharge from the Army in February, 1946.

Mr. Wilson went to work for the Du Pont Company ten years ago, upon his graduation from Virginia Military Institute with the B. S. degree in chemistry. After two years as a chemist in the Phila-

E. S. Wilson, Jr., new DuPont representative at Cincinnati.

delphia laboratory of the Fabrics and Finishes Department, he was transferred to the sales office at Chicago.

In March, 1942, Mr. Wilson became a second lieutenant in a mechanized cavalry division. He went through the entire European campaign and held the rank of major when he returned to civilian life. He is now 33 years old and is a native of Macon, Ga.

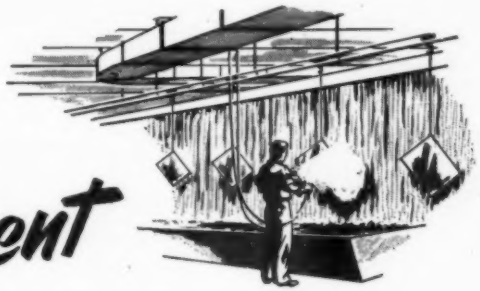
Wyandotte Makes Changes in Industrial Staff

Wyandotte Chemical Corp., Industrial Department, Wyandotte, Mich., announces the following changes in their sales staff:

James Poulson has been moved to the Pacific Coast, with headquarters in the Los Angeles office of the Wyandotte organization. Mr. Poulson has serviced Wyandotte industrial accounts in the Milwaukee territory since 1938. He may be reached through the Seattle, San Francisco and Los Angeles offices of Wyandotte Chemicals Corp.

Lawrence E. Glynn has been serving the Detroit area Wyandotte accounts for over a year. Both Charles Beaubien, veteran Wyandotte Industrial Department Representative and Mr. Glynn are native Detroiters. Mr. Glynn is a member of the American Society of Metals and the American Electroplating Society.

Robert J. Racine replaced James Poulson as Wyandotte Industrial Department Representative in Milwaukee, and has been in this territory about a year. He joined Wyandotte Chemicals following the war. Mr. Racine received his technical training at Michigan College of Mining and Technology.



Prevent

Over-Sprayed Paint from Building Up in Your Waterwash Spray Booth

YOU CAN PREVENT over-sprayed paint, lacquer or enamel from coating spray booth back plates by adding a specialized Oakite material to the tank of your recirculating water system. Method is easy . . . material is economical . . . results cut paint costs.

The exceptional oil-removing properties of Oakite materials designed for this work condition water so that paint does not adhere to plates. Recirculating pump and lines are kept free and clean. Paint reclamation is easier, more profitable.

Ask the Oakite Man!

Your nearby Oakite Technical Service Representative will gladly give free details, help you prepare a solution. Ask him, too, about available Oakite materials for quick, complete stripping of paint pails, mixers, spraying equipment and tanks. His services are free for the asking. Arrange for them TODAY!

OAKITE PRODUCTS, INC., 32F Thames St., NEW YORK 6, N.Y
Technical Representatives in Principal Cities of U. S. & Canada

OAKITE
REG. U. S. PAT. OFF.

MATERIALS
METHODS
SERVICE

Specialized Industrial Cleaning

How I'd Select and Buy Finishing Materials

By RAYMOND C. ADAMS

Technical Director
Gilman Paint & Varnish Co.

Among other things, here's how I would make sure that I got only finishes of lasting durability, which is what we get on certain nationally known products, but definitely not on many others that we buy.

KNOWING what I know now about the technical aspects of paint, if I were suddenly made a purchasing agent to buy finishing materials, what would I do that isn't customarily done? (More than likely I would start looking for another job, if I didn't go insane in the meantime.) Would I spend more time with paint salesmen than is normally done? Would I let them conduct more tests in my plant than is customary? Would I divide up my business among more suppliers than is normally done? I wonder!

Lack of Knowledge Among Salesmen and Buyers

Having had experience as a salesman, as well as in the chemical and administrative end of the paint business, it has always irritated me the way paint is sold and bought. Why? Because the paint industry spends millions of dollars annually on research, and yet the majority of paint is bought without any knowledge of its quality. Too many salesmen don't know what they are selling, and too many buyers don't know what they are buying.

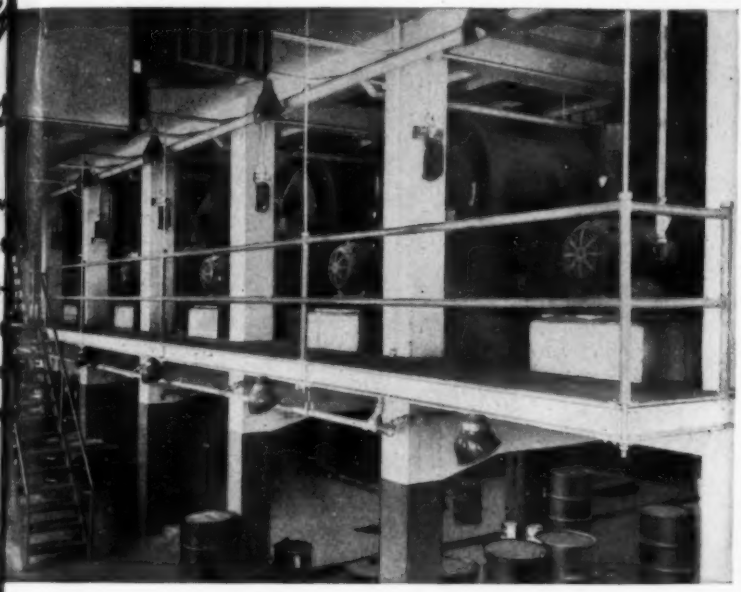
I don't condemn the salesmen or buyers too much for this situation because, after all, paint is a rather indefinite material. No form of specifications for grading paint has ever been devised that is practical. The government has specifications for the paint that it buys, but at best these specifications aren't very satisfactory and they certainly aren't applicable to private business.

The primary factors affecting the sale of industrial finishes, listed in the order of their usual importance, are:

1) Cost.
2) Ease of application.
3) Drying time.
4) General appearance of finish.
5) Salesman's personality.
6) Service.
7) Quality—Sometimes.

Why do I say "quality sometimes?" Because how many buyers have any way of judging quality? How many plants that use industrial finishes have the facilities or personnel capable of judging the quality of a finish? Very few.

(Continued on page 76)



ew ball mills boost R-M output 25% . . .

INCLUDED in the newest $500,000 R-M plant addition are rows of high-capacity steel ball mills which are helping to increase production of R-M lacquers and enamels over 25%.

Unnecessary handling is eliminated because of a 'continuous-flow' or 'gravity' process which routes ingredients from the top or fourth floor through to final packaging and shipping on the ground floor.

Production facilities are being expanded rapidly, as the demand for R-M finishes increases.

R-M finishes are specified by the manufacturers of America's finest cars, farm implements, road equipment, refrigerators, stoves, office appliances and countless other domestic and industrial units.

R-M

Rinshed-Mason Company

5925-71 MILFORD AVE. • DETROIT 10, MICH.

Any Table Top Finish Shows Many Checks, but . . .

As I write these words my eyes glance at the table top under my paper. What do I see? A rather unsightly checked lacquer finish. The table is five years old. I bought it direct from a reputable furniture manufacturer. The lacquer first started checking after about a year. I know the company that manufactured the lacquer—one of the largest in the U. S.

For several years I tried to sell my lacquer to this furniture manufacturer. He was friendly to me but I wasn't too successful. When I first started calling on him, he gave me a sample of his sealer and lacquer to try and match. About a year later I noticed a panel in my laboratory that was badly checked. I was surprised to learn that it was finished with the materials the furniture manufacturer in question had given me. Quite elatedly I hurried over to the furniture manufacturer to show him the panel. I guess he thought I was trying to pull a fast one because he wasn't at all concerned. He said he hadn't been having any complaints. He doesn't know of my complaint. What good would it do me to tell him now? It didn't do any good before.

For that matter, did you ever go in to a furniture store and complain about the finish on a piece of furniture that you had bought there? If you have, you were probably told that as long as the finish was satisfactory upon delivery to you, they couldn't be responsible for what happened afterwards. Actually, when a furniture store has such complaints they rarely complain to the manufacturer about them because they know they will be given the same type of answer.

Another thing that leads to confusion is that very little furniture carries the name of its manufacturer. If it did, then dissatisfied customers would be able to boycott manufacturers of poor quality. When the public complains about a furniture finish, the gist of the answer is usually: "Anyone with any sense knows that furniture finishes don't hold up any too well." My answer is that there are any number of paint chemists who don't know why this should be.

My Old Refrigerator's White Enamel Is Perfect

As I look up from this writing I happen to glance into the kitchen where my eyes fall upon my refrigerator. It is eight years old. The enamel finish on it is just as good as it was the day I bought it. *And of all the coincidence, I happen to know that the enamel on the refrigerator was made by the same manufacturer who made the checked lacquer on my table.*

Does it make sense, why an enamel finish on a refrigerator should be so far superior to the finish on a table? Of course, it makes sense. The refrigerator

Magnetic

To be magnetic, products — as well as personalities — must possess distinctive qualities peculiar to themselves alone. Finishes developed in our Creative Studio give you the opportunity to put your product in this "magnetic category". ● Our highly skilled artists approach your finishing requirements with a singular thought. They are determined to provide you with an individualistic coating unequalled in texture, beauty, and ease of application. ● Place your product on the dealer-preferred, consumer-preferred lists by taking advantage of the special service we offer.

No Tampering with Quality

ROCKFORD VARNISH *Company*
ROCKFORD, ILLINOIS

Manufacturers of Protective and Decorative Coatings

company has a laboratory for testing their enamels. They hold their suppliers to very rigid controls. The first consideration of the purchasing agent for the refrigerator company is quality. What's more, he knows what he is buying. The reverse is true of the furniture manufacturer in question.

Real Quality Isn't Given Sufficient Attention

As a paint chemist I think that in too many instances the quality of paint is far below what it should be. A large part of this blame lies with the users. Why? Because too often finishing materials are judged on only the first six of the previously mentioned merits, namely 1) cost, 2) ease of application, etc. Quality, the seventh merit, rarely enters the picture.

To be more specific, the usual procedure that a user of industrial finishes follows in testing a new material is to apply a small quantity to several actual production pieces. In addition to its general appearance, the finishing foreman is interested in whether using it will make his work harder or easier. In other words, he is interested chiefly in its ease of application and drying time. If the finishing foreman approves the material, the purchasing agent is interested in the cost and service that will be rendered. If these are in line, the salesman's personality is the deciding factor.

If quality is considered at all, the extent of the usual test is to see if the film can be scratched with a thumb nail. If it can't be scratched, it's really good. The thing that irkes me is that little thought or concern is given to how the finish will look in six months. Just so it holds up until purchased by the public is all that matters. If I were a purchasing agent of industrial finishes I would be quality conscious.

Not Enough Known About What Real Quality Is

The statement was made above that *too many salesmen don't know what they are selling.* They don't know how good or how bad their products really are. Purchasing agents and buyers likewise do not know the quality of a paint, primarily because they just don't understand paint. I don't feel that a purchasing agent or buyer of paint needs be an experienced technical man to fill his job. On the other hand, I think there are some basic fundamental facts that must be known about any finish in order to determine its quality.

Unfortunately it is rather difficult to predetermine the quality of a paint that has not been previously determined from actual field usage. There are a number of laboratory tests that give reasonably good indications as to how well or long a paint will last.

What Tests Determine "Visual Application"

The laboratory tests that are conducted on a paint to determine its quality can be divided into two classes which I prefer to designate as 1) Visual Application, and 2) Hidden Quality.

"Visual Application" tests determine the brushing, spraying or dipping properties; coverage, build, number of coats required, odor, overspray, blushing, pinholing, orange peel, flow, gloss, wiping, uniforming, general appearance and other properties that are best determined by just looking at the applied finish.

Actually it is difficult to conduct some of these tests in the laboratory because often times conditions and equipment or other

Standard
ALPO
FINISH

DEPENDABLE BEAUTY

ALPO Finishes have been time-tested in actual service proving their complete dependability as well as their lasting beauty . . . Long enough to have earned consumer acceptance and manufacturer preference as the most popular protective coating of the year.

ALPO gives the product a novel and pleasing appearance of richness and depth, yet is really satiny smooth. Easy to apply; no special bake; one coat gives 50% greater coverage. ALPO is a utility finish, too, with high resistance to abrasion, heat, cold and humidity. Comes in most pastel shades.

SINCE 1870

STANDARD VARNISH WORKS

2600 Richmond Terrace, STATEN ISLAND, N. Y.
2600 Federal Street, CHICAGO, ILLINOIS

Engineers of Product Finishes

factors are different from plant conditions and equipment. Finishing a small panel in the laboratory is certainly different from production line finishing. It has been my policy, when conducting these types of tests, to do the best that can be done in the laboratory but withhold final opinion until a plant run can be made.

The "Visual Application" tests are, of course, important for two reasons, 1) general appearance of the finish, and 2) adaptability of a paint to production line usage. These are all tests that any good finishing foreman can run and evaluate. For that matter, it is actually the "Visual Application" tests that are generally tested when a user of industrial finishes "runs a test."

And Tests to Reveal "Hidden Quality"

The "Hidden Quality" tests determine how good or long a finish will last. Such tests include flexibility, hardness, adhesion, cold check, printing, water, alkali, soap and acid resistance; package stability, color permanency, exterior durability, etc. These tests can only be conducted in a laboratory. Unfortunately there are no accepted standard methods or instruments used to perform these tests as new and improved methods and equipment are constantly being made available. However, the equipment used to conduct most of these tests is reasonably simple to operate and low in cost.

If I were a purchasing agent of paint, I would have a laboratory where "Hidden Quality" tests could be conducted. Five hundred dollars would buy all of the basic equipment needed. The person conducting the tests (male or female) would not need to be a highly trained technical person, but preferably someone with paint experience.

After establishing my laboratory I would have my paint suppliers furnish me complete data as to how their finishing materials hold up under the various applicable "Hidden Quality" tests. I would check their data and if discrepancies arose I would ask them to perform the tests in my laboratory. Based on this data I would then set up definite "Hidden Quality" tests specifications that my finishing materials had to meet. Such a method leaves everything up to the paint suppliers, thus not imposing any hardships or restricting research or business, as is often times the case with government specifications.

Next I would arrange a display room for my finished products. Attached to each of my finished articles on display I would have information giving the complete finishing procedure used, as well as the name or names of the paint manufacturers and their code numbers of the various finishing materials used. Also, I would include the cost of the various paints and the "Hidden Quality" specifications.

How I'd Present My Case to Paint Salesmen

I appreciate the fact that in normal times paint salesmen are many and can be somewhat annoying and time consuming. My policy with salesmen would be to take them into my display room and say, "Here is what we make. These are our finished products with the finishing procedure indicated, so that you can compare in your mind our 'Visual Application' qualities with your own materials. This is the information concerning our suppliers and the code numbers of their products. Our

Satisfaction

IN

LACQUER THINNERS

"20 million gallon reasons why we lead the field"

BARKER

BARKER CHEMICAL COMPANY

One of America's Largest Manufacturers of Lacquer Thinners

2258 SOUTH UNION AVE. CHICAGO 16, ILLINOIS

cost is this. Here are our specifications for 'Hidden Quality.'

"If you so desire, I will be glad to sell you quart containers of any of our products at our actual cost and would appreciate your opinion as to the materials that we are using. If you feel that you can furnish us a paint with improved 'Visual Application' or 'Hidden Quality' properties, or one that is equal in these respects but lower cost, we would be interested in receiving a sample of your offering.

"Along with your sample we will require a written statement from you outlining the results of your tests and giving reason why you feel that we should buy your paint rather than that of our present supplier. We will in turn furnish you a report of our tests conducted on your sample. In the event of any disagreement you may have the privilege of conducting your own tests in our laboratory on the same sample that you submitted. For reasons that are obvious the representative or representatives of only one manufacturer will be permitted in our laboratory at one time.

"As you no doubt can appreciate from our standpoint, if you once fall down in the sample or samples that you submit, you must furnish us tangible evidence that any future samples of the same type of product that you wish to submit have been improved."

Specifications Would Be Changed As Better Materials Appeared

My "Hidden Quality" specifications would only be temporary. Any time a new material was found to be superior, and I adopted it, my specifications would be changed accordingly to the new standards. My "Visual Application" requirements would also be subject to change any time that it was proven that a change was worthwhile. An example of this would be the changing of a baking schedule from 30 minutes to 15 minutes, if it was found that other necessary properties were not sacrificed.

It might seem to some paint manufacturers that such a system would place such a huge amount of work on their laboratories that it wouldn't be workable. Actually it would tend to do just the opposite. As it is now, an appreciable amount of industrial finishing materials are "tailor made" for various customers. This is done to make the paint superior in certain "Visual Application" properties but many times this is accomplished at the sacrifice of "Hidden Quality." In other words, today we make paint to meet certain production requirements or "Visual Application" qualifications, and in so doing we may sacrifice quality.

What we should do is set up certain "Hidden Quality" standards and then make our "Visual Application" qualities and plant conditions fall in line. As an example, I know of an ultra modern furniture plant that is being built. The owners have advised finishing material manufacturers that when they are sufficiently far along with the construction and planning, they will furnish them their production schedule requirements so that the finish manufacturers may design finishes that will meet the furniture company's schedules. To me that was what you call putting the cart before the horse, and also mighty poor business.

The advantage of knowing the code numbers of the products of the various paint manufacturers would enable each to keep records

(Continued on page 89)

in their file of the others. In this way, if the same material was encountered at other plants there would not be any need to run additional laboratory tests.

This Plan Is Practical and Would Really Work

From the standpoint of the users of industrial finishing materials the plan outlined is relatively simple. With the smaller users it might be too costly to devote one person's entire time to doing the testing. In such instances the testing might well be a part time job of the finishing foreman or some other regular employee. It would not require a technical man to be the purchasing agent—just a good business man.

The general public is dissatisfied with the quality of paint used on many articles. There is no reason for it and the buying public knows it. They will gladly pay the extra price, if necessary, for good paint. In this connection, I feel confident that users of finishing materials, in addition to improving their products and thus getting additional business, would actually lower their painting costs through their increased knowledge, if such a plan were followed.

Unquestionably some people upon reading of this plan will say that it is fine in theory but not practical. I would like for such persons to ask themselves if they are aware of the relatively poor quality of so many industrial finishes. If they do know about this condition, what have they done or what are they doing to help it.

All companies are interested in maintaining and building up their present business in the years to come. Many of them have definite ideas as to how this can be done. Likewise many of them could profit greatly by becoming conscious of the quality of their finishes and attacking their problem in a business like fashion. I dare say that there are many paint chemists who could do a far greater service for their employer if they were in the employ of the users of industrial finishes rather than with the manufacturers.

The plan I have outlined is not only practical but is followed, to a large extent, by many of the larger users of industrial finishes. The automotive industry is an example of the use of good finishing materials. No matter how good a certain make of automobile might be, how many of the cars do you think would be sold if inferior finishes were used on them?

We paint manufacturers can and want to make better finishes. We can't, however, if you users won't buy them. It's up to you. What are you going to do about the situation?

Mixing Equipment Co. Appoints Representatives

Mixing Equipment Company, Rochester, New York, has announced the appointment of additional representatives to increase their field engineering services to customers in the Eastern seaboard area of Philadelphia, New Jersey, Delaware and Maryland.

The Maleson Co., of Philadelphia, Penna., have taken over the entire territory formerly handled by J. E. Snyder who has retired and, in addition, their engineers will cover the Southern Section of New Jersey, all of Delaware, the major portion of Maryland and Eastern Central Pennsylvania formerly contacted by the New York Office of Mixing Equipment Company through Glenn J. Moorhead, Eastern Divisional Sales Manager.

The customer contact engineers of Maleson Co. who will now serve the area are M. S. Maleson, Leonard Maleson, E. Brosius, J. C. Reynolds and S. R. Gerhart, all experienced and capable Mechanical and Hydraulic Engineers.

Letters from Readers

Mechanical Striping Tool

We would appreciate it if you could advise us where we could secure a mechanical stripper with a wheel attachment 1/16-in. wide or 3/32-in. wide.—H. T. Co. (Chicago, Ill.)

Try Wendell Mfg. Co., 4234 N. Lincoln Ave. of your city; or K. H. Gettner Shop, 4210 Grand River Ave., Detroit, Mich., or Beugler Mfg. Co., 4318 W. 2nd St., Los Angeles 4, Calif.—Ed.

Copies of Articles Wanted

We are very much interested in your article entitled, "Conditioning the Water for Wet Spray Booths," as published in your February issue of INDUSTRIAL FINISHING. Will you please send us a reprint of same?—A. R. F.

Please send us two copies of the article on tumble finishing by Mr. Fairburn, which appeared in your magazine some time ago. I read in the May issue of INDUSTRIAL FINISHING that reprints are available.—W. E. Corp.

We would like to receive reprints of the article entitled, "Production Finishing of Factory-Made Homes" which was published in the April, 1946 issue of INDUSTRIAL FINISHING Magazine, and the article "Finishing Furniture by Modern Methods," as published in the August, 1946 issue.—C. C. Co.

Will you please send us copies of the article entitled, "The Ford Finish," as published in March 1947 issue, and the article, "Clean Rinsing After Metal Cleaning" which appeared in the April, 1947 issue of INDUSTRIAL FINISHING?—K. C. W.

Tear sheets of articles supplied.—Ed.

Finish Testing

On page 86 of your May, 1947 issue of INDUSTRIAL FINISHING, there is mention of a mandrel which is used to test the flexibility and adhesion of paint coatings. Will you please advise us who can supply this conical mandrel for testing finishes?—B. M. Co.

In your May issue of INDUSTRIAL FINISHING, we notice two separate pieces of testing equipment which we are interested in purchasing. They are the conical mandrel for testing flexibility and adhesion of paint on coated sheet metal, and the scratch hardness tester. Will you please tell us who supplies this equipment?—A. M. P.

Information given—ED.

Painting Awnings

We are interested in establishing a plant wherein we can stripe awnings. We will require the complete installation of the necessary machinery. Can you forward to us a list of concerns who produce machinery for this purpose? Any information you can supply will be very much appreciated.—S. T. A.

We are sending you a list of manufacturers of roller coating machines, as we believe this is the best method to use to stripe your awnings.—ED.

Abraser Wanted

In an article entitled, "Predetermining Finish Wearability," published on page 52 of April, 1947 issue of INDUSTRIAL FINISHING Magazine, mention is made of the Taber Abraser. We would appreciate it if you would give us the address of the manufacturer of this abraser and any similar machine.—L. Ltd.

The Taber Abraser is made by Taber Instrument Corp., North Tonawanda, N. Y.—ED.

Bar Top Finish

It has been noticed that a lasting Bar Top Finish has been requested by the "D. Co.", the inquiry appearing on page 104 of the May issue of INDUSTRIAL FINISHING Magazine.

We wish to advise that we manufacture a bar top varnish that meets all of the requirements as outlined in the inquiry. Namely, our bar top finish is of brushing consistency, it will dry hard ready for use in three to four hours, and three coats should stand the hardest type of use for a

INDUSTRIAL FINISHES

Lacquers
Varnishes
Enamels
Stains
Fillers

JONES-DABNEY

Since 1919
LOUISVILLE, KENTUCKY

RESINS AND GRINDING LIQUIDS

"Syntex" Alkyds
Grinding Liquids
Varnishes
Special Resins

JONES-DABNEY CO.
DIVISION OF DEVOE & RAYNOLDS CO., INC.
Factories at
LOUISVILLE - NEWARK - DETROIT

period of not less than one year. This product is alcohol proof, waterproof and ammonia resistant. It is available in all size containers and carries the trade name of Hour Varnish.—McCloskey Varn. Co.

Who Makes "Qualasole?"

Kindly furnish us with the name and address of the company who supplies Qualasole.—H. F. Co.

This is a product of Qualatone Products, New York 14, N. Y.

Can Supply Flock Adhesive

We noticed in your May issue an inquiry for flock adhesive. We have manufactured flock undercoats for many years and are in position to supply this material to all concerns interested in flock finishing.—Yarnall Paint Co., Philadelphia.

Gold Leaf

Please give me some information on gold leafing. I do not seem to be able to get the bright effect of the gold leaf after application.—J. J.

An article that gives complete information on this subject is published in this issue.—ED.

Electrostatic Process

We are interested in the electrostatic process of painting, and would like to know what equipment is required, who manufacturers it, and if it is sold or leased. The products we wish to finish are small steel items. —N. C.

This equipment is made by H. J. Ransburg Co., Indianapolis, Ind.—ED.

Luminous Paint

We would appreciate receiving some information regarding luminous paint for stamped metal parts.—F. Co.

Information supplied.—ED.

Spray Painting

We are interested in any information that you may have available, or suggestions where we might obtain information covering the various phases of paint spraying; how and what spray equipment to select and use for various jobs; types of guns and their advantages; etc. No doubt you have in your files material of this nature which has appeared in INDUSTRIAL FINISHING which might be helpful to us. We will greatly appreciate any information you can send us.—M. B. Corp.

Finishing Small Parts

Please give us some information on the application of finishes to small metal articles via a process which uses a dip and centrifugal spinning of the objects to be finished.—C. F. C.

The purpose of this letter is to inquire whether you are in position to give us the name and address of the concern who manufacturers a whirling machine for finishing small objects. I have a client who is interested in coating small metal clasps with flesh colored paint. Any information you can give me will be appreciated.—J. W. K.

We suggest that you communicate with Ronci Machine Co. of Centredale 11, R. I.—ED.

New Finishing System

We would appreciate it if you would send us the names of the firms who would be able to make a survey of our present finishing department, and on the basis of the survey make recommendations with respect to the installation of a new system. We are interested in installing a conveyor system for our finishing department. —M. S.

Information given.—ED.

Roller Coating Machines

Will you please give us any information that you have in your files regarding roller coating machines? We would also appreciate receiving a list of manufacturers who make this type of equipment.—S. Co.

Information supplied.—ED.

"Chrome" Paint

We are in need of a paint that looks like a chrome or nickle finish. This paint must dry hard and is to be applied to zinc. Can you tell us what company might be able to supply us with such a material?—P. L.

Sprayed Plated Finish

We notice on page 102 of May issue of INDUSTRIAL FINISHING, reference to a sprayed-on finish with the appearance of electro plating. If there

UNITED LACQUER MFG. CORP.
UNITED LACQUER MFG. CORP.
Uniloid Hammertone
Decorative Finish
Has found wide use, acceptance and complete satisfaction among manufacturers of many different kinds of products that need an attractive decorative finish.
UNILOID HAMMERTONE is available in a wide variety and range of colors and shades.
Its use is recommended on many different kinds of products such as
LAMPS . . FIXTURES . . WATER HEATERS . . CABINETS . . AUTO ACCESSORIES . . VENDING MACHINES . . RADIO EQUIPMENT . . PANELS, etc.
Easy to apply—bakes 10 min. at 300°—30 min. at 250°.
Ask for finished sample panel your color specification and then order 5 gallons for a severe production test.
UNITED LACQUER MFG. CORP.
MAIN OFFICE, LINDEN, N. J. · NEW ENGLAND, EVERETT, MASS.
Lacquers · Thinners · Metallized Finishes · Synthetics · Special Coatings

is such a material on the market we would be interested in receiving the names and addresses of the manufacturers.—L.G.H. (England)

Information sent.—ED.

Finish for Steel

Will you please send us whatever information you can on the subject of zinc coating and Bonderizing. We plan to finish steel strip in coils. Any information you can send will be appreciated.—T.T. (England)

We are sending you this information by letter.—ED.

Tumble Finishing

We are interested in tumble finishing small wood knobs and other small wood items.

Please advise where we can purchase tumbling barrels. If you have any information on applying stain and lacquer by tumbling, quantities, time and methods, etc., we would appreciate your sending this also.—W.P. Co.

We are giving you a list of manufacturers of tumbling equipment and a reprint of an article on tumble finishing small wood products.—ED.

Flock Finishing

Will you please send me a list of the manufacturers of flock and flock adhesives? I am interested in obtaining any literature pertaining to flock finishing.—E.T.K.

We have in our possession a copy of the September, 1946 issue of INDUSTRIAL FINISHING. In this issue you have an article about flock finishing, in which you state that flock is an ideal acoustical material. Any factual sources regarding this production and its values would help us in our contacts with architects, designers and decorators.—A.F. Co.

We are sending you the names and addresses of manufacturers of flock and flock adhesives, also tear sheets of some articles on this subject.—ED.

Silk Screen Equipment

We are coming out with a new lawn game and we find that it is necessary that we use a silk screen stencil for applying the scoring numbers on the side of our rack.

Please advise us where we may obtain these stencils or screens, and we will also appreciate any information of the kind of paints used in the application of figures and letters.—I. H. Co.

Names of silk screen suppliers sent.—ED.

Cleaning Small Metal Parts

We would greatly appreciate receiving any literature you can supply on the subject of cleaning and tumbling finishing small metal parts.—N.R. Co.

Information supplied.—ED.

Paint for Camera

We repair all types of cameras. To date, we have not found a satisfactory paint to use for touch-up work on the inside of a camera.

The paint must be an absolute dull black, suitable for application on both wood and metal parts. It should be the least possible thickness of film and dry in the least possible time without force drying.

Do you know of any material which will answer all of these requirements?—W.H. Co.

Can some reader suggest anything?—ED.

Window Paint

Will you please advise us the name and address of the manufacturer of "Skyco" no-glare window paint?—L.W.H.

It is Skybrite Co., Cleveland, Ohio.—ED.

New Principle in Oil Burning

Iron Fireman Mfg. Co. announces a new principle of heavy fuel oil control at a recent dealers' convention in Cleveland, according to C. T. Burg, vice president in charge of sales.

It is in the new series of industrial heavy fuel oil burners that the principle is used to stabilize the feeding rate of fuel, regardless of changes in fuel oil temperature or viscosity. These new burners have capacities of from 8 to 125-gallons per hour.

Even though the fluidity can vary widely with changes in temperature, these burners will deliver the same quantity of oil, no matter how thick or thin, and will feed evenly at the maximum burning rate or throttled down to low capacity. Users of oil-fired baking ovens take note. Detailed information may be obtained by writing Iron Fireman Mfg. Co., 3868 W. 106th St., Cleveland, Ohio.

All wrapped up in his work

The python's skin is a versatile surface covering. It stretches wide to hold an oversize meal, then snaps right back into perfect shape. It gets as much wear as a heavy-duty tire, and stands up. When the python feels like a change, he merely grows another skin, then shrugs the old one off.

If you have a surface coating problem, use lacquer. It's the snake skin's only rival for versatility. Lacquer is easy to apply, durable, attractive, fast-drying. Your lacquer supplier would like to tell you about it in more detail.

CSC makes solvents and plasticizers, but is not a lacquer manufacturer.

COMMERCIAL SOLVENTS
Corporation
17 East 42nd Street, New York 17, N. Y.

Questions and Answers

Finishing Hitches

We are manufacturers of small drop forged ball and socket trailer hitches. We have been manufacturing these hitches for many years, finishing them in their natural steel finish.

We now find that it is necessary to paint these hitches or plate them in some manner, both for appearance and for weatherproofing. We are not certain exactly what we require, but believe that we prefer to zinc plate them, and we would like to install zinc plating equipment in our factory to handle this job ourselves. Can you refer us to a company who could supply us with this equipment? If you have any further suggestions or recommendations we will be pleased to hear from you.—H. B. T.

In a letter we are sending you the names and addresses of several engineers. We suggest that you have one or more of them come into your plant and propose a suitable layout of equipment to finish your hitches.

Regarding the finish for these hitches, you might consider finishing them by chemical plating. As you know, the finish by chemical plating would not produce any color on your product. If this is desirable, we believe that an engineer will be able to plan and execute a suitable system for cleaning the hitches and applying a finish of suitable toughness to answer your purpose.—Ed.

Spray Exhaust Problem

Our paint booth exhaust system carries paint particles in suspension and deposits them on cars in the parking lot. Is there any practical way of overcoming this except by the installation of water wash spray booths?—S. G.

While the water-wash booth probably costs more, it does offer a safe and satisfactory solution of such a problem. The maintenance cost is low and the danger of fire is less when water wash spray booths are used.

You might investigate spray booth filters. It is our belief that this filter is installed on the back wall of the spray booth, the purpose being to catch the over-spray as the air is drawn through the filter by the exhaust fan.

Another plan is to use interlocking open-joint baffle plates in the back of the booth put in front of the exhaust fan. These plates will catch part of the pigment from your overspray, but they will require frequent cleaning (should be cleaned daily), amount of air exhausted will have to be increased as baffles retard the flow of air and they are a fire hazard because of the continual collection of finishing material on them.—Ed.

The time to repair roofs and broken window lights is during the summer months—before fall rains and winter snows start.

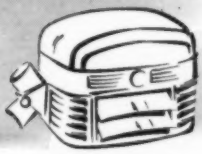
HAM-R-TEX

is durable attractive distinctive!

Has the appearance of hammered metal — maximum eye-appeal. Tough smooth finish.

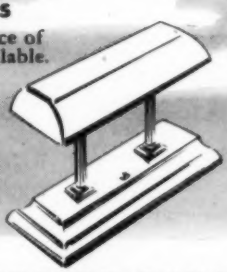
HAM-R-TEX is economical!

No Primers or Undercoats necessary.
Has high square foot coverage.



HAM-R-TEX Colors

A wide choice of colors is available.



an Outstanding Novelty Finish

F-S

FERBERT-SCHORNDORFER CO.

CLEVELAND, OHIO

A Division of American-Marietta Company

Materials Supplies Equipment

New Type Handle for Brushes and Tools

Nesbit Industries, Inc., 1823 Milwaukee Ave., Chicago 47, Ill., announces the development of a new thumb groove safety grip on wooden handles of all types.

Based on the common leverage principle, the grip, a routed depression on the left side of the handle, prevents side swing and increases control of the attached tool. An added safety measure, the thumb groove provides a non-slip feature that is unique to the handle of any brush or tool. For wielders of the paint brush, the thumb groove is of special value in close-to-the-bristle gripping on lining work, or for applying filler.

Development and manufacture of the thumb groove safety grip handles is currently being carried out by Nesbit Industries at an added cost of less than one cent per unit, in many instances.

Utensils for Handling Corrosive Solutions

A new line of unbreakable shop utensils for handling acids, alkalis, and other corrosive solutions is announced by Automotive Rubber Company, Inc., 8637 Epworth Boulevard, Detroit 4, Michigan.

Manufactured from reinforced perforated metal the utensils are completely covered with a 1/8-in. seamless rubber coating that protects them from action of chemicals and protects solutions from contamination. Coatings of soft or semi-hard natural rubber or synthetics may be had.

The line includes pails of 3 and 5-gallon capacity, a 2-quart dipper, 10-in. funnel and measures of 2, 4 and 6-quart capacity. Special sizes and shapes are available to specifications.

According to the manufacturer this line is designed to make the handling of corrosive solutions safer because danger of breakage is completely eliminated.

The line is illustrated and more completely described in Catalog Sheet Number 120 which may be obtained by writing the manufacturer.

Lacquer for Finishing Polystyrene

Monsanto Chemical Co., St. Louis 4, Mo., reports the development of a successful line of clear and colored surface finishes for polystyrene plastics.

It is said that these lacquers overcome the tendency of solvents to produce crazing in polystyrene. The lacquers are either clear or pigmented, resistant to oil and will protect the polystyrene. They were developed to make possible the coating of the face or back of clear moldings in color and to provide wipe-in colors for dials, trademarks and decorations.

The lacquers can be sprayed onto the polystyrene surfaces and will dry rapidly to a hard, adherent and mar-resistant finish of high

Remember Pearl Essence for

A Decorative Finish

MEARLMAID Pearl Essence is being used on hundreds of different products to produce a decorative and attractive effect.

Investigate the numerous advantages of a Mearlmaid Finish before you select the final coating. Its sales appeal and merchandising value are important.

THE MEARL CORPORATION

153 WAVERLY PLACE NEW YORK, N. Y.

Factories

ROSELLE, N. J. EASTPORT, ME.

MEARLMAID PEARL ESSENCE

Has High Reflective Light Value

For Dials Controls Instruments

WORLD'S LARGEST PRODUCER OF PEARL ESSENCE

gloss suitable for an exterior finish. The wipe-on coatings, applied to inlays, such as dial numerals, letterings and designs, may be sprayed through masks, applied with a brush or flowed on.

Non-Fogging, Rubber-Frame Safety Goggle

A new rubber-frame safety goggle, specially designed for work in hot and humid atmospheres where chemical and dust hazards exist, is announced by American Optical Co., Southbridge, Mass.

Feature of the new 705 supervent goggle is an ingenious nosepiece with an inhalation and exhalation valve to prevent fogging and steaming of the goggle's large acetate single lens. When the wearer inhales, air sweeps through the chamber, removing moisture on the inner lens surface before it can fog. When exhaling, the inlet valve closes, allowing moist air to escape through exhalation valve.

New rubber-frame safety goggle.

The goggle is recommended for wear on jobs requiring the handling of acids and caustics. It protects against chemical splashes, spray and impact of foreign particles and exposures to fine dust concentrations.

The frame of the goggle is molded from non-irritating natural rubber. It conforms to the contours of the face, giving an airtight fit to prevent any acid or dust leakage. An outstanding feature of the goggle is the wide-angle vision it provides. This is accomplished by the large size of the lens and the curved face form. The lens can be replaced easily if necessary.

Direct-Reading pH Meter

Unique design and rugged construction are features of the new Industrial Model direct-reading pH Meter for measuring acidity and alkalinity, announced by Cambridge Instrument Co., 3056 Grand Central Terminal, New York 17, N. Y. As a laboratory instrument, it can be used at a bench or table for tests of small samples. As a portable instrument for making spot-checks, its weight of only 10-lbs. and the mounting of the electrode system as an integral part of the meter, makes it convenient to carry. And as a continuous indicator directly on processing operations, the meter can be suspended over a vat or tank, hung from a rack, or mounted on a wall. On such processing applications it can be used directly in grounded solutions as the glass electrode is completely shielded; extra-length lead wires can be furnished to permit use of elec-

The Solution to your Wrinkle Finish Problem

ENTERINKLE

A SUPER WRINKLE ENAMEL FOR PRODUCT FINISHING

- ANY COLOR
- ANY TEXTURE
- PERFECT ADHESION
- EXTREMELY TOUGH
- PERFECT UNIFORMITY OF FINISH

Write Our Industrial Finish Division for Samples and Prices

YOUR INQUIRY WILL BE GIVEN PROMPT ATTENTION

ENTERPRISE PAINT MFG. CO.

ASHLAND AVENUE AT 29TH STREET
CHICAGO 8 - - - - ILLINOIS

trodes at any desired distance from the meter.

Batteries have been completely eliminated, operation is from any 110-volt, 50 or 60-cycle A. C. outlet; a voltage-regulator corrects for fluctuations from 100 to 130 volts. High stability has been obtained through improved design of electronic circuit and galvanometer; re-calibration will seldom be needed more often than once a week. Compensation is automatic for variations from 0° to 100° C. in solution temperature and for changes in room temperature. The clear scale is set at an angle at the top of the metal case so pH values can be read at a glance. Accuracy is .10 pH over the instrument's full range of 0 to 14 pH.

Gas Fired Tank for Metal Cleaning

A new gas-fired tank for cleaning metal parts in factories is announced by D. C. Cooper Co., 1467 S. Michigan Ave., Chicago 5, Ill. The same tanks are also avaiable equipped with steam coils where steam heating is desired. Sturdy construction of every part of the tank makes possible its use in cleaning large and small parts. Parts are so thoroughly cleaned that defects can be readily detected in the metal.

The tank may also be used for quickly stripping paints, baked enamel and lacquers from steel and iron parts. Heating pipes 4-in. in diameter are in the bottom of the tank. Fumes are removed through a duct which extends the length of two sides and the back of tank, to which an exhaust fan can be connected.

Cooper gas-fired tanks come complete with thermometer, drain, overflow connections, and can be equipped with an automatic agitating device. Several models are available in a variety of sizes to meet all cleaning requirements.

New Plastic Coating for Dry Spray Booth

"Liquid Envelope," peelable plastic film, is now being supplied in a special formulation for coating spray booths. The new material is sprayed on the clean booth in a film .002-in. to .005-in. thick. When the booth is ready for cleaning, the coating is peeled off

There is hardly anything in the world that some man cannot make a little worse and sell a little cheaper, and the people who consider price only are this man's lawful prey.

. . . *Ruskin*

PRATT & LAMBERT-INC.
Industrial Finishes
NEW YORK BUFFALO CHICAGO
FORT ERIE, ONT.

right down to the metal in large sheets carrying with it all accumulated paint, lacquer and spray dust.

It is said that 6x6-ft. spray booth can be stripped clean in less than five minutes, and recoated in the same time. No scraping is required—the plastic film peels as simply and easily as a banana.

A solvent for cleaning spray guns is also available. The coating and solvent can be obtained from Better Finishes & Coatings, Inc., 268 Doremus Ave., Newark 5, N. J.

"Prepaint" Assists in Painting Aluminum

A material called "Prepaint" is now available for applying to aluminum and its alloys which are to be painted or lacquered in production. No special equipment is required, and existing factory flow-lines are generally not disturbed. Features of this material are:

1) Can be applied at room temperature by dip, spray or brush.

2) Reacts chemically and bonds with aluminum surfaces in from 15 to 60 seconds, in a single chemical treatment.

3) Can be kept in an ordinary steel tank or container without piping, valves or controls. No special tank linings are needed.

4) Requires no heat or venting.

5) It is stable, non-inflammable, non-toxic and can be stored for long periods of time.

6) There is no scale build-up or deposit on tank, racks, jigs and fixtures, and they do not have to be "stripped" or otherwise treated. Racks or fixtures may be of steel, copper, brass, etc.

A typical procedure for a production line is:

A) Remove grease, dirt and foreign material.

B) Immerse in "Prepaint" solution at room temperature for from 15 to 60 seconds; rinse and dry.

C) Spray, dip or otherwise put on a good paint or lacquer.

The resultant finish has excellent adhesion and uniformity.

Wrought, cast, die-cast, machined, forged, extruded and other forms of aluminum and its alloys respond to this treatment.

Aluminum parts with inserts or attachments of other metals or plastics can be treated to form a good bond with paint or lacquer. Aluminum finished with "Prepaint" may be painted immediately after drying, or the work may be held over for subsequent painting.

"Prepaint" is a product of the Technical Processes Division of Colonial Alloys Co., Ridge Ave. & Crawford St., Philadelphia 29, Pa.

Prufcoat Aluminum, a New Maintenance Paint

Prufcoat Laboratories, Inc., 63 Main St., Cambridge 42, Mass., announces Prufcoat Aluminum, now available for all maintenance painting. It is said to be especially adapted for use in critical corrosion areas. A corrosion-proof, synthetic resin vehicle and a special aluminum powder that leafs remarkably well are combined to produce this material.

Each particle of aluminum powder is encased in the acid, alkali and waterproof synthetic resin vehicle. Since aluminum is acted upon by both acids and alkalis, and since there are always some traces of chemicals in the

HILO

LACQUER LEADERS

No. 1 CLEAR WOOD LACQUER

Gets a Big Hand for Handles

Orders and re-orders speak louder than words! And the fact that one of the country's large manufacturers of saw handles has used many drums of this lacquer in the past several years speaks for its efficiency and durability.

No. 1 Clear Wood Lacquer provides a smooth, hard, lustrous coating . . . protects wood handles from extremes of temperature, perspiration, grit and dirt . . . gives them a quality look that boosts sales! This lacquer may be applied by hand dipping or automatic dipping.

Originally developed for use on wood handles, Hilo No. 1 Clear Wood Lacquer has been giving impressive results on various other wood items made of maple, birch, beech, etc.

Send for a sample of Hilo No. 1 Clear Wood Lacquer for test in your plant.

HILO

HILO VARNISH CORPORATION

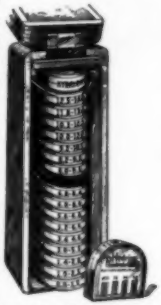
42-60 Stewart Avenue, Brooklyn 6, N. Y.

2420 Washburne Ave., Chicago 8, Ill. • Park Sq. Bldg. Boston 16, Mass.

atmosphere in every industrial plant area, this encasing of aluminum particles in the special vehicle protects the leaved aluminum from any dulling or corrosive effect. It may be used inside or outside the plant.

New pH Test Kit

Announcement is made of a new pH Test Kit containing nineteen Hydrion pH Test Papers in eighteen plastic dispensers, all in one convenient case. This complete assortment covers the full range from pH 0.0 to pH 14.0, and distinct color changes can be obtained within 0.25 pH Unit of almost any point of interest on the pH scale. Eleven of these papers are now released for the first time. The complete assortment is listed as Hydrion Set H-20. Kit may be obtained from R. P. Cargille, 118 Liberty St., New York 6, N. Y.



Gyra Flow Finishing

George Koch Sons, Inc., Evansville, Ind., announce a new continuous process called "Gyra-Flow" for high speed handling and finishing small parts.

The method of gyration in industrial finishing really started back in 1945, when a manufacturer of cigarette lighters decided to produce 250,000 units in 90 days. He had everything required except a high speed finishing system. This called for new equipment. Each

Steel parts of garden tools passing through the cleaning process, before dip-coating and baking.

lighter case was individually cleaned, rinsed, dried, dipped in lacquer, dried again, sprayed two coats of wrinkle enamel, baked one hour, and returned to the starting point. A single conveyor belt 1200-ft. long produced 2,500 completely finished cigarette lighter cases every four hours. Except for loading and unloading, all operations are fully automatic. Six spray guns directed into a small cabinet through which the work passed applied the finish. The entire process occupies an area 3x30-ft.

Although thousands of items can be coated by this method, there is a limit to size and weight. Any product no larger nor heavier than a telephone base, an auto jack, or a bowling pin can be finished by Gyra-Flow. Practically anything that can be die cast is small enough to finish this way. For instance, golf balls may be dipped four coats and dried up to 30,000 a day.

The advantages of gyration in industrial finishing are said to be many. Each piece receives individual washing of all surfaces, good drainage and dry-off, minimum carry-over, a tearless dip, or smooth

A Two-Edged Sword . . .

TO SUPPLY the pent up post-war demand, the furniture industry is rapidly being mechanized by PALMER-BEE Conveyors.

P-B Trolley Conveyors up to 1200 feet in length are being installed for processing, finishing, transporting, warehousing and shipping.

The P-B Trolley Conveyor is a two-edged sword; it cuts costs and cuts time in process simultaneously.

Telephone, telegraph or write to our Winston-Salem, North Carolina office (established 1929) for the advice of an experienced engineer.

PALMER-BEE CO.

DETROIT 12, MICH.

PALMER-BEE CONVEYORS

mechanical spraying, immediate oven entry without loss of heat, adequate cooling periods, and proper timing. Uniform finishes that require no handling in process, stand up better too. Compactness gives extra room in the finishing department. Smooth silent operation with a balanced load saves on power. Many economies exist throughout the system that will lower production costs and hold rejects to a minimum.

Detailed information on Gyration finishing can be obtained from George Koch Sons, Inc., Evansville 4, Indiana.

New Flock Kit For Small Shop

A new kit for small shop application of flock has been announced by DonJer Products Co., 1115 Sterling Place, Brooklyn 13, New York.

Complete materials for finishing more than 30-sq. ft. of surface are contained in an introductory kit of "Suede-Tex" as the material is called. The kit contains undercoat adhesive in two colors, brown and green, the flock in the same colors, an applicator brush, a bottle of thinner and a patented, high-velocity spray gun for applying the flock.

The adhesive is applied to the portions of the object to be coated, then, before it dries, the flock is loaded into the reservoir of the spray gun and the material is driven into wet adhesive. The material consists of extremely short fibers of lustrous rayon in a variety of colors. The stream of air through the reservoir of the spray gun churns the fibers and separates them, causing each to drive straight into the undercoat at high velocity. With one end embedded, the rest of the fiber stands erect, forming a pile quite like velvet.

An employee suggestion box placed in the plant with money rewards for ideas used, often helps both management and the worker.

The kit contains undercoat adhesive in two colors, brown and green, the flock in the same colors, an applicator brush, a bottle of thinner and a patented, high-velocity spray gun for applying the flock.

"finishing time cut 2/3— production increased 300%!"

This actual case history may be the answer to one of your problems.

Problem: Business volume of a manufacturer of household appliances recently outgrew his finishing department facilities. How to meet this increased demand, when finishing facilities could not be expanded?

Answer: Previously, a 30-minute bake had been used. Then H. V. Walker's research laboratories developed a special baking enamel which would dry in 10 minutes—and was actually superior to the previous finish! Additional development work is now bringing drying time on this special paint down to 5 minutes.

Results: Production up 300% overnight . . . finishing schedules cut by 2/3 . . . and another might happy H. V. Walker customer!

Can we help you? Either with a special paint for your special needs, or with any one of our fine quality stock finishes?

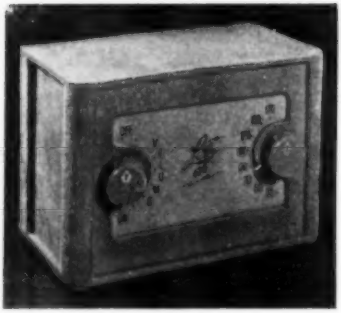
H. V. WALKER CO.

Elizabeth 4, New Jersey

"A Symbol of Quality *in the Finishing Field"*

Flock Finished Radio Cabinet

Claremont Waste Mfg. Co., Claremont, N. H., announces that their product is being used on the new "Lee 400" radio being manufactured by Jason Electronics, Brooklyn, N. Y.



Flock finished radio cabinet.

Many prospective radio buyers are pleased—but a bit puzzled—by the new and different surface finish on the cabinets. The rich, velvet-like surface of the Lee cabinet is produced by spraying with a Claremont rayon flock.

"Sleek"—Brushless Paint

SLEEK, "The Brushless Paint," was a war-laboratory development for use by the Navy to meet the demand for a paint that would permit super-speed application, have excellent durable, weather-resistant qualities, and would dry quickly.

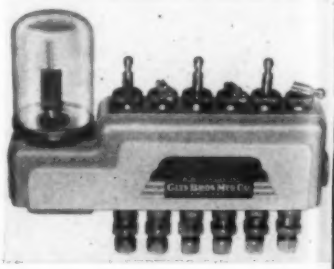
"Sleek" is an unusual paint in that application is recommended by merely wiping it on the surface with an ordinary soft, lint-free cloth, rather than by brush, although the latter may be used if desired. The resultant painted surface is perfectly smooth, completely free from application marks, or brush marks. It can be used for both wood and metal surfaces. Sleek's durability has been tested under most trying weather conditions of hot sun and salt spray of Navy operations, with excellent results.

Under average atmospheric condition, Sleek will dry dust-free within one hour and completely dry in three hours. It is manufactured by the Miler Corp., Garland Bldg., Chicago, Ill.

Centralized Multiple Oiler

Announcement of a new centralized unit made up of a transparent reservoir of unbreakable plastic with a non-spill valve which greatly simplifies refilling, and a main reservoir from which copper tubes lead to the various remote oiling points. In the main reservoir, fed from the patented plastic constant level reservoir, the oil is maintained at an even level, insuring a well regulated abundance of oil to the individual bearing. By the same principal, overflow and flooding of bearings is impossible.

A feature is the inclusion of a series of valves—one for each of



NEW PERIOD Production Finishes

BAKING ENAMELS | LACQUERS SHELLAC | ENAMELS FILLERS | SEALERS SUPPLIES | PRIMERS STAINS | SYNTHETICS VARNISHES

Our Thirtieth Anniversary

We pause briefly to mark another milestone in the growth and progress of our Company. The past thirty years have witnessed tremendous strides in the development of raw materials and in their formulation and conversion into modern organic coatings.

New Period Laboratories have worked long hours, weeks and years to keep abreast of these developments. The gratifying result has been the steady and constant growth of our business from year to year.

To our friends and customers in many different industries we wish to express our appreciation for their support and encouragement.

It is our desire and intention to continue to produce the finest finishes on the market and to serve our customers to the best of our ability.

Our complete line of New Period finishes and our laboratory facilities are at your service. Write us!

NEW PERIOD Production Finishes

ESTABLISHED 1917

NEW YORK WOODFINISHERS' Supply Co. Inc.

109 IMLAY STREET BROOKLYN, N. Y.

the leads—permitting the flow to each bearing to be adjusted individually or turned completely on or off. Thus the system may serve more than one machine, or it may serve complex units with independently working parts. It should prove valuable as a central oiler to feed multiple air lines for air driven tools, sanders and rubbing machines. Complete information may be had by writing the Gits Bros. Mfg. Co., 1846 Kilbourn Ave., Chicago, Ill.

Optimus Announces New Cleaner for Metal

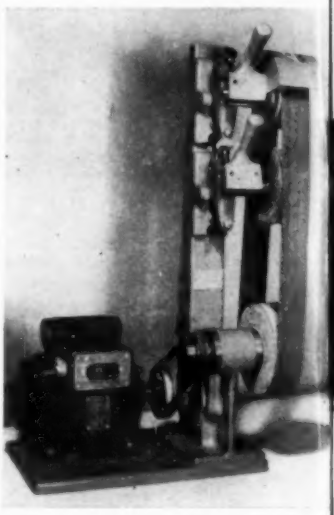
Optimus No. 100, a new cleaner, is announced by Optimus Detergents Co., 82 Water St., Matawan, N. J., manufacturers of industrial cleaning materials.

A white, free-flowing powder, Optimus No. 100 is completely soluble in hot or cold water. It is a balanced blend of mild alkaline materials, including special water softening ingredients. It is free rinsing and at low concentrations is soft on the skin.

An important application of this new product is in power spray washing machines. Here it is used at concentrations of ½-oz. to 2-oz. per gallon at temperatures from 130° F. to boiling. It is effective in removing light oils, grease and dirt, and may be used on ferrous or non-ferrous metals.

Abrasive Belt Machine

The abrasive belt has now been applied to the utility grinder according to an announcement by Porter-Cable Machine Co. of Syracuse, N. Y. This new machine makes it possible to grind on an abrasive belt operating over a resilient contact roll or wheel.



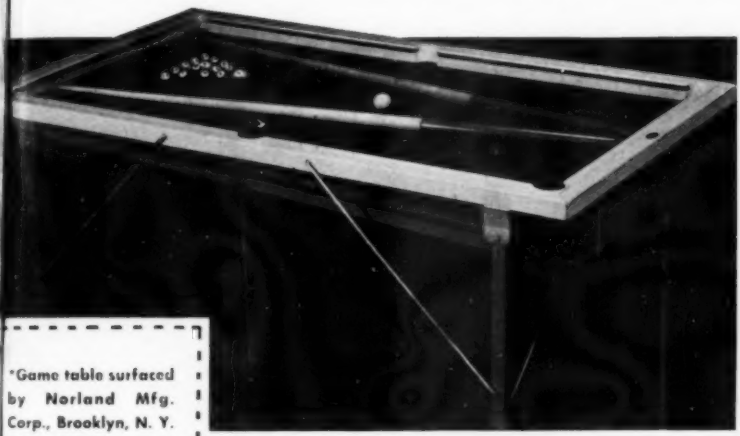
The massive arm which supports the upper pulleys can be vertical or horizontal or at any angle between. The middle wheel can be removed and replaced with a flat steel plate.

Since the wear is on the abrasive belt and not on the supporting contact wheel, this wheel or roll remains flat, square at the corner or side, and maintains its diameter and balance. The resiliency of the roll eliminates chatter. A flat plate can also be positioned inside the belt to provide a suitable support for flat grinding and polishing.

DeVilbiss Moves New York Office

The DeVilbiss Company, Toledo, Ohio, manufacturers of spray painting equipment, announces that its sales, engineering and service branch in New York City is now located at 460 Fourth Avenue. This new location provides enlarged space for sales, engineering and service facilities. Customers of the DeVilbiss Company are invited to make full use of these new facilities.

Take Your Cue from Norland*



*Game table surfaced by Norland Mfg. Corp., Brooklyn, N. Y. with 1/32" Claremont Rayon Flock sifted on silk-screen adhesive applied to masonite & composition board.

BEAUTY
Rich surface textures simulating custom fabrics in a full range of appealing colors.

VERSATILITY
Provides a superior finish on almost any surface or shape: wood, metal, glass, paper, cork, etc.

ECONOMY
Quickly and easily applied using standard, low-cost equipment.

...for quality and uniformity—use

CLAREMONT FLOCK

The durable and attractive playing surface of the new Norland Junior Pool Table is obtained by the use of a CLAREMONT Flock . . . providing a richer and more appealing finish than conventional cloth coverings at substantially lowered costs

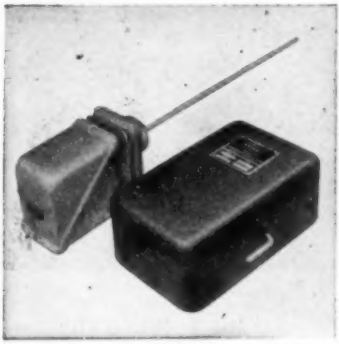
"We use Claremont Flock", states Mr. Adler of the Norland Manufacturing Corp., "because we can depend on its quality and uniformity."

Take your cue from this user and look to Claremont for the answer to your finishing needs. Samples for test runs, together with full details on uses and application techniques available upon request. Inquiries invited!

CLAREMONT WASTE MFG. CO.
CLAREMONT, NEW HAMPSHIRE

Safeguarding Gas Flame Failures

Combustion Control Corp., Cambridge 42, Mass., introduces the latest Fireye failure safeguard for industrial gas ovens, kilns, and boilers. Fireye Electronic Flame Rod Type 45JQ1 brings to the combustion field the most advanced electronic design incorporated in



Available with equipment to meet particular oven requirements.

several complete combustion control systems—readily applicable to all types of gas-fired burners.

Fireye is a foolproof electronic flame failure safeguard which actually "feels" the gas flame—maintains a constant vigil day and night against the ever-present danger of flame failure. When the flame fails, it instantly cuts off fuel and can be wired to automatically sound an alarm. Unlike thermal controls, Fireye responds to the flame itself, not to a secondary effect of the flame.

This safeguard incorporates many unique design features. It is easy to install to all gas burner heads, immune to moisture and electrical leakage, and protects against combustion of by-products.

Bucy Now General Manage of Zapon Division

Ed. H. Bucy has been appointe general manager of the Atlas Powd Company's cellulose products depar ment, according to Isaac Fogg, pres dent of Atlas. Mr. Bucy, assista general manager of the departme for the past four years, succeeds K. Weidig, who has resigned.

In his new capacity, Mr. Buc heads both sales and production ac tivities of the Zapon-Keratol Divisio and the Zapon Division. The forme division manufactures coated fabric including leather cloth, at the plan in Stamford, Conn., while the latte makes industrial finishes, includin enamels, varnishes, synthetics, etc at plants in Stamford and Nort Chicago, Ill.

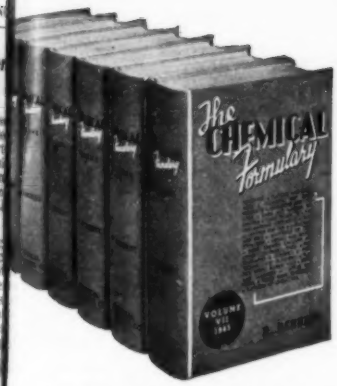
Mr. Bucy has been actively en gaged in the protective and decor ative coatings industry for ove twenty-five years and has been in strumental in the development o several new finishes which hav

Ed. H. Bucy, advanced to position of Gen'l Manager, Atlas Powder Cellulose Products Dept.

proved popular and have been widely accepted. In 1921 he started with the Waukegan (Illinois) Chemical Company, industrial finish manufacturers, which company later became Brevolite Lacquer Company and was acquired by Atlas in 1933.

Following the acquisition of Brevolite, Mr. Bucy was made technical director of the Zapon Division of Stamford and served in this capacity until 1942, when he was called to Washington by the government as a consultant.

Mr. Bucy is active in numerous organizations of the industry. He was president of the New York Paint Varnish and Lacquer Association in 1945, and served the association in 1944 as chairman of the products finishes committee. He is a member of the New York Paint and Varnish Production Club. He is a resident of Stamford, Conn.



The Latest

CHEMICAL FORMULARY

Vol. VII — $7.00

Compiled by a Staff of Experts

EDITOR-IN-CHIEF, H. BENNETT

VOLUME VII of THE CHEMICAL FORMULARY includes thousands of the best and most practical formulae, compiled by authorities and experts in each field of industry.

It is an entirely new book, complete in every detail. Each formula is new and different. Not one formula contained in the previous six volumes is repeated in this book.

From thermoplastic adhesives to insecticides, from leather dressings to vegetable preservation, from invisible inks to refractories, from antifreeze solutions to metal finishes—this valuable book describes and explains the latest commercial methods and processes.

l keep you up-to-date with the newest developments and trends. It will bring you a great fund eas, information, data and formulae that would otherwise be accessible only after consulting s of books.

A PARTIAL LIST OF SUBJECTS COVERED

ber & Latex	Furs	Animal Remedies	Skins	Marking
hesives	Automobile Specialties	Welding	Boiler Compounds	Compositions
lishes	Removing Stains	Insecticides	Glass	Soaps
bricants	Bleaches	Pharmaceuticals	Textiles	Cleaners
ugs	Ceramics	Oils & Fats	Fibres	Waterproofing
rm & Garden Specialties	Deodorants	Liquors	Beverages	Metals
ins	Disinfectants	Dyeing & Coloring	Flavors	Alloys
ments & Concrete	Laundry Specialties	Fluxes	Rustproofing	Glues
nthetic Resins	Dental Products	Explosives	Metal Treatments	Pastes
ating	Etching	Paints	Food Products	Fireworks
yrotechnics	Fireproofing	Lacquers	Enamels	Waxes
lders		Varnishes	Cosmetics	Mildew Proofing
		Leather	Inks	Chemical Specialties

Own the Complete 7-Volume Set of THE CHEMICAL FORMULARY

mes I, II, III, IV, V, VI and VII comprise the entire set of THE CHEMICAL FORMUY. These combined volumes contain more than 4,000 pages of useful, tested formulae from important industry. Although the contents covered in each volume may be on the same sub-, there are no duplications between any of the volumes. By having seven volumes you will have, our fingertips, an up-to-date formula reference library of commercial formulation.

Each Volume is $7.00—the complete set is $49.00

AILABLE AT LAST!

CUMULATIVE INDEX

For Volumes I, II, III, IV, V and VI of THE CHEMICAL FORMULARY—$4.00

h the comprehensive index, covering all the formulae included in the complete six volumes of E CHEMICAL FORMULARY, you can now find what you want when you need it. It indiat a glance the volume and page number for each item you want. The material has been arin strict alphabetical order to facilitate quick reference. Numerous cross references will inly lead the user to all possible subjects relating to formulae or processes which are of interest.

INDUSTRIAL FINISHING Magazine

2 North Meridian Street **Indianapolis 4, Ind.**

Booklets Catalogs Circulars

Cost Cutting Bulletin

"Cutting Tomorrow's Costs" is the title of a new booklet published by the American Management Assoc., 330 W. 42nd St., New York 18, N. Y. Planning and Coordination, Product Research, Product Design and Process Research are some of the topics discussed in this booklet. Price, $1.00.

Bulletin on Tuf-On Finish for Metal

A four-page technical bulletin describing Tuf-On P-70 Pri-Met, has been prepared by Brooklyn Varnish Mfg. Co., Inc., 50 Jay st., Brooklyn 1, N. Y. This bulletin gives complete information on the application of Tuf-On finishes to zinc, steel, cadmium, magnesium, etc. Copies may be secured by writing the company.

Booklet on New Steam Cleaning Unit

A special, 12-page illustrated booklet describing the new, improved Oakite-Vapor Steam Cleaning Unit has just been issued by Oakite Products, Inc., New York.

Among the outstanding features of the Oakite-Vapor Steam Cleaning Unit, as reported in the booklet, are: 1) Ease of operation; 2) rapid steam generation, 100-lbs steam pressure provided in one minute, starting from cold; 3) economy of fuel consumption; 4) simultaneous two-gun steam-cleaning and paint-stripping; 5) convenient mobility, as supplied by portable shop wheel assembly model and trailer chassis model; 6) low maintenance cost; and 7) absence of coil-clogging difficulties, since cleaning solutions do not pass through heating coils. According to service records, the company reports, the new, compact mobile unit successfully reduces cleaning time in such jobs as: steam cleaning of large work units before pickling; cleaning metal parts before treating surfaces for storage; cleaning electric trucks, hoists, chains, conveyors; cleaning salvage metal; cleaning water-wash spray booths, etc. Shop floors, walls, ceilings, loading areas are also economically cleaned by this unit. Readers desiring a free copy of this booklet should address their request to Oakite Products, Inc., 132F Thames St., New York 6, N. Y.

New Bulletin on Metal Surface Preparation

A new bulletin of metal cleaning chemicals, inhibitors, rust proofing chemicals and protective coatings, explains the use of these products on various metals.

It should prove useful in selecting materials best suited to production requirements. It includes a description of inhibitors, rust proofing processes, metal cleaning chemicals, protective coatings and specialized products essential in producing conditions requisite to a successful finish.

Copies may be obtained from the American Chemical Paint Co., Ambler, Penna.

Flexible Shaft Machinery Catalog Available

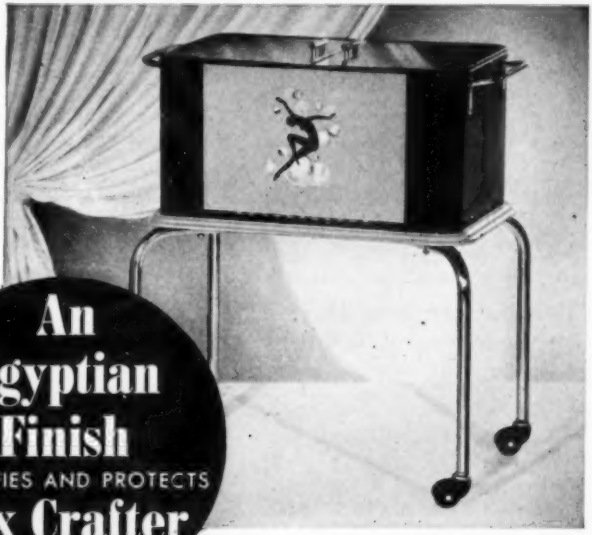
A new thirty-two page illustrated catalog showing the complete Wyco line of flexible shaft equipment, is now available through Wyzenbeck & Staff, Inc., 838 W. Hubbard St., Chicago 22, Ill.

This catalog contains much information on how to order flexible shafts and recommendations as to proper models and types of shafts for various kinds of work. Copies of this catalog may be obtained direct from the manufacturer.

Consulting Chemists and Chemical Engineers

A 1947 edition of the Foster D. Snell, Inc., brochure under the heading "The Chemical Consultant and Your Business" is just off the press and copies are obtainable without charge from the above company at 29 West 15th Street, New York 11, New York.

Following an outline of many of the types of problems which the chemical consultant encounters, there is indication of the types of business



An Egyptian Finish

BEAUTIFIES AND PROTECTS

Mix Crafter

An Attractive Specialty by Chrom-Craft Division of American Fixture & Manufacturing Co., St. Louis, Mo.

The attractive Mix Crafter is finished with Egyptian's High Bake NFR. Exceptionally fine two-tone color combinations are achieved by normal application of this specialized Egyptian finish.

The right finish is more than mere surface protection . . . so put your regular or special finish requirements up to Egyptian. Inquiries are invited.

THE EGYPTIAN LACQUER MANUFACTURING COMPANY

SPECIALIZED PRODUCTION FINISHES

P. O. BOX 444, NEWARK, N. J.

enterprise which find continual or occasional use for the services of chemical consultants. The booklet then deals with the various branches of service offered. These include not only research in varied fields but Rubber and Plastics Investigations, Organic Synthesis, Analytical Service, Physical Testing, Bacteriological Inspections, Pilot Plant Operations, Chemical Engineering in many ramifications, Chemical Market Research, Current Information, Legal Testimony, Patents. Photographs illustrative of certain phases of work done by the organization are included.

The booklet concludes with the corporation policy in relation to clients, the basis of charges and the types of agreements which are offered.

New Silicone Data Sheet

Dow Corning Corp., Midland, Mich., announces a new two-page specification for rewinding induction motors with Silicone Insulation. This in an organic insulation bonded and impregnated with semi-inorganic silicone resins and varnishes.

These specifications, issued as Preliminary data sheets No. B-30-1 of Silicone Notes Series, list all of the materials necessary to ensure maximum service life in motors rewound with Silicone Insulation. Copy of this data sheet may be obtained from the company.

Booklet on "Drax", Finish for All Fabrics

The makers of Johnson's Wax have just issued a new directory of top textile converters and suppliers who are offering fabrics finished with Johnson's Drax.

This multi-colored booklet entitled "A Who's Who in Fabrics" is a ready reference of all sources supplying fabrics finished with Johnson's Drax. It is alphabetically arranged with complete branch office addresses, telephone numbers and trade names.

Copies are available upon request from S. C. Johnson & Son, Inc., Racine, Wisconsin.

Booklet on Balanced Lighting

Balanced Lighting, what it is, and why you need it, is the subject of a new booklet published by The Fostoria Pressed Steel Corp., Fostoria, Ohio. It defines and illustrates the subject and sets forth the tie-in between the Science of Seeing and Balanced Lighting. Statements by well-known authorities in lighting circles substantiates the soundness of the subject. Eight important benefits received from a Balanced Lighting installation are listed in the booklet. Every industry has a need for Balanced Lighting. In requesting this booklet, ask for BL-447.

Plastic Rack Coating for Metal Cleaning Racks

Peninsular Chemical Products Co., 6795 E. Nine Mile Road, Van Dyke, Mich., announces an illustrated bulletin on Pen-Kote 590—a non-inflammable, odorless Saran-base rack coating which withstands chlorinated degreasing solvents as well as all cleaning and plating solutions.

Unretouched photos show how this coating is quickly applied by hand dipping without bridging or webbing; and other advantages are illustrated and described in detail. A free trial offer is included. Copies of the bulletin are available upon request to the company.

Booklet on Plastics

Just off the press is a multicolor 24-page reference booklet on plastics, released by G. Felsenthal & Sons, Chicago, plastic injection molders and fabricators. Furnishing a handy guide to the varied uses of plastics by this concern, the reference booklet underscores the conclusion that possibilities for the use of plastics in industry are numberless. Only engineering ingenuity in bringing the right plastic to the right application is required to translate these possibilities into actual fact.

The booklet discusses injection molding, blow molding, mold, tool and die-making, assembly and inspection, laminating, printing, spraying, filling, silk screening, and heat sealing and their numerous industrial applications. It describes the firm's product design and model shop, thoroughly equipped to produce even the most complicated models of items still in the formative stage.

Photographs of molded and fabricated industrial and electronic parts including dials, nameplates, clock cases, razor cases, scales, calculators and computers, record players, radio handles, automobile parts, sales helps and consumer merchandise further illustrates the versatility of plastics and the ingenuity of Felsenthal.

The reference booklet, which is a convenient filing size, includes a valuable glossary of plastic terminology descriptions of the properties of the many plastics used by the concern. Copies may be obtained from G. Felsenthal & Sons, 4100 West Grand Avenue, Chicago 51, Illinois.

I. C. D. FORMULA NINE

NON-INFLAMMABLE « wax free REMOVER »

for paint, varnish, lacquer, baked enamel, adhesives

EASY TO APPLY—NO AFTER CLEANING

I. C. D. FORMULA 9 is the standard of safety and quality . . can be sprayed or brushed . . doesn't raise grain nor discolor . . quickly removes all kinds of finishes and coatings from any surface or material . . costs less to use . . saves time, labor and material.

BRUSH CLEANER I. C. D.—Non-inflammable brush cleaner works fast . . does not injure nor loosen the bristles. Easy to use . . leaves the bristles clean as a whistle. Order a gallon can and convince yourself.

ORDER TRIAL GALLON AT DRUM PRICE

INDUSTRIAL CHEMICAL DEVELOPMENT CORP.

347 MADISON AVE. NEW YORK 17, N. Y.

Industrial FINISHING

Distributed Monthly to finishing room and paint shop foremen, production superintendents and company officials of metal-working, woodworking and miscellaneous industrial plants where production cleaning and finishing are major operations in parts and products manufacture.

•

Published the 18th of each month by
PRACTICAL PUBLICATIONS, Inc.
1142 N. Meridian St., Indianapolis 4, Ind.
Telephone.....Riley 6771

•

President.....W. H. Rohr
Vice-President.....E. A. Dosch
Secretary-Treasurer.....R. E. Suits

•

Subscription Rates Per Year

U. S. and Possessions.....$2.00
Canada and Foreign Countries.....$4.00
(No subscription solicitors are employed)

Editorial

Educate The User

The first step in what may be a broad educational program was made by the Plastics Industry in connection with New York University's School of Retailing in a course of lectures on plastics.

Plastics, of which there are a vast number of kinds and types, have collectively suffered more blame perhaps than any other product, due to occasional single misapplication or misuse. The purpose of the course was to acquaint the retailer with the possibilities and limitations of various types of plastics. Through this and with proper identification of various products by the manufacturer, the ultimate user will have some protection against mistaken application.

This is a worthy project and the idea offers distinct possibilities for extension into wider fields to include products other than plastics. Perhaps the idea of education as to the applicaton, use and care of the things man uses could be brought directly to the consumer through adequate courses to be included in home economics classes, in junior and senior high schools and colleges.

The reputation of the producer and the retailer as well as the product itself is enhanced by the satisfaction of the consumer through the intelligent use and care of any product whether it be a piece of furniture or a plastic kitchen gadget. Industry-wide sponsorship of such courses should be the means of enlightening the consumers of tomorrow.

Who Will Put Out the Fire?

With the alarming increase in fires throughout the United States, management has become definitely fire conscious. As a result, modern fire fighting tools ranging from hand extinguishers to automatic equipment have been installed in industrial plants.

Regardless of how efficient the equipment is or how well it is

maintained, unless it is automatic, rapid selection and use of the proper type of extinguisher depends upon men. Hence the question arises, who will put out the fire? What is everybody's business is nobody's business. In the matter of fires the first five minutes determines the extent of the loss.

One average size plant (about 250 employes) evolved an excellent plan. They installed modern extinguishers suitable for use on electrical and other type fires. Next they formed a nucleus of a fire-fighting crew composed of six employes, one each from raw material storage, fabrication department, metal cleaning and preparation, finishing room, assembly and packing. This group formed the permanent crew. They received instructions and were trained in the correct use of the proper equipment. Training included actual use of extinguishers on every type of fire planned and set outside the plant building. Each member of the fire crew selected an alternate from his department to serve for one month, then another for the next month and so on. The alternates are trained by the permanent crew. Thus it may seem that over a period of years practically every employee will receive instructions and actual training in the proper use of fire fighting equipment.

The fire crew is responsible for maintainence of all fire extinguishers of every type. Very little productive time is consumed in maintaining this crew of twelve. Modern efficient equipment, if needed, is in capable hands. Management doesn't have to ask, "Who will put out the fire?"

SPRUANCE

for

QUALITY

Wood and Metal Finishes

STAINS
FILLERS
SEALERS
LACQUERS
VARNISHES
SYNTHETICS

We are now supplying the furniture trade with 4-HOUR DRYING FILLERS. It can help you speed up production. Write today.

FACTORY & LABORATORY

THE GILBERT SPRUANCE CO.

RICHMOND & TIOGA STS.

PHILADELPHIA, PA.

SPRUANCE QUALITY

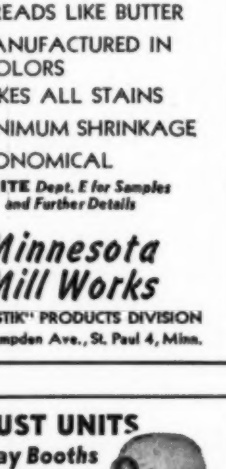
"PLAS-STIK"
No. 100
...The New Wood-Filling and Patching Compound

- SPREADS LIKE BUTTER
- MANUFACTURED IN COLORS
- TAKES ALL STAINS
- MINIMUM SHRINKAGE
- ECONOMICAL

WRITE Dept. E for Samples and Further Details

Minnesota Mill Works
"PLAS-STIK" PRODUCTS DIVISION
2364 Hampden Ave., St. Paul 4, Minn.

EXHAUST UNITS
for Spray Booths and Hazardous Locations



FAN SIZES
12" to 42"

FREE DELIVERY
C. F. M.
900 to 29200

Immediate Deliveries from Stock.
Also Manufacturers of a complete line of waterwash and dry type paint spray booths with accessories. Send for details.

M. & E. Manufacturing Co.
2571 Winthrop Ave.
Indianapolis • Indiana

Research Will Relieve Shortages

Men in industry should give serious thought to the use of substitute materials. The word substitute should not be interpreted in the light of inferiority. Many of the materials used in products of today are really superior to those they have replaced.

The raw material situation has not reached an alarming state, but that is no reason why industry should be lulled into a false sense of security. Recently Interior Secretary Krug, speaking before the World Conference on Mineral Resources, stated that the following minerals were once abundant in this country but are now becoming depleted: Copper, lead zinc, antimony, tungsten, manganese, vanadium, chromium, mercury, gold, silver, fluorspar, bauxite and possibly petroleum. Also, we lack tin, nickel, platinum, industrial diamonds, flake graphite and quartz crystals.

There seems to be an abundant supply of magnesium. nitrogen, bituminous coal and lignite, rock salt, phosphate rock and molybdenum. It is a well-known fact that the United States is producing more than 50% of the world's steel, yet has only 10% of the ore reserves.

The answer to the problem will be found in research. But research is not self motivating. Industry has been given synthetic resins from which finishing materials and glue are made, and synthetic fibers from which modern textiles are woven. There is a definite need for more synthetic materials and more alloys to serve the future requirements of industry. Every alert manufacturer has a contribution to make, for a serious

shortage anywhere along the line will directly or indirectly affect every producer.

The time to do something about it is before the shortage actually exists. Now is the time to determine what materials will go into tomorrow's products.

What To Watch In A Small Business

"Small business, of which there are so many, are in more danger of failure because of lack of sufficient knowledge than any other cause."

The Committee for Economic Development made that statement after an extensive two-year study. This committee points out that 98% of all business firms comprise "small business" in the United States, that they provide 35% of the national volume and employ 45% of all workers. Hence it may be seen that small businesses form collectively a very important group.

Ambitious men and women are attracted to "go into business" for themselves. In many instances they lack sufficient capital, but in more cases they do not have enough knowledge of economics, cost, sales sales and manufacturing procedure to survive.

This important group is well worth saving. Recommendations have been made for longer term credit, realignment of tax laws and possible federal legislation as to competition. All of these things should prove helpful.

But the real saving must start with the individual members of the small business group. The first step would be a searching inquiry by each member of himself, his knowledge and how he conducts

"Sales Appeal"

STARTS WITH A *beautiful* WOOD-GRAIN *finish*

American Graining Plates are photographic reproductions of fine woods.

AMERICAN RICHWOOD PRODUCTS CO.

Graining Plate Division

104 E. Mason St., Milwaukee 2, Wis.

his business. The answers must obviously be honest and sincere. This will expose many hidden weaknesses and provide the information necessary before any corrective measures are possible.

With this knowledge of the weak links there are many sources of help and education, adult study groups from elementary subjects to university courses, trade papers, trade associations, schools conducted by material and equipment manufacturers and by government agencies.

The right place to begin to find trouble is to find where the trouble started. As a rule, it's always "an inside job."

The size of a business has nothing to do with its being run efficiently.

Big business and small business need each other as competitors and as customers.

President of The Arco Co. Elected University Trustee

Howard E. Wise, president of The Arco Company, Cleveland and Los Angeles paint manufacturer, has been elected to the Board of Trustees of Western Reserve University.

A graduate of Cambridge University, Cambridge, England, Mr. Wise is chairman of the Joint Educational Committee of the Cleveland Paint and Varnish Production Club and the Cleveland Paint, Varnish and Lacquer Association.

Rockwell Elected Director of Hercules

Reginald Rockwell was elected a director of Hercules Powder Company, it was announced following the monthly meeting of the board of directors.

Mr. Rockwell is general manager of the Paper Makers Chemical Department.

The new director has been associated with Hercules Powder Company since 1922 when he joined the naval stores plant at Brunswick, Georgia, as a draftsman. Later, he was appointed plant engineer. In 1926, he transferred to the Hattiesburg, Mississippi, naval stores plant as assistant superintendent. Both of these plants produce rosin, turpentine, and pine oil and their dirvatives which are used in the paper, paint, varnish, textile, soap, insecticide and other industries.

Mr. Rockwell became assistant general manager of the Paper Makers Chemical Department in 1944, and was appointed general manager of that department in September, 1946.

Born in Nova Scotia, he attended Pictou Academy there. Later he received a B. Sc. degree in electrical engineering from Worcester Polytechnic Institute, Worcester, Massachusetts. Mr. Rockwell lives in Newark, Delaware.

Instrument Conference and Exhibit in Chicago

The Instrument Society of America will hold the second National Instrument conference and exhibit at the Stevens Hotel, Chicago, September 8 to 12.

The International Liason committee extends an invitation to engineers of all countries. A reception room (Room 22, Stevens Hotel) will be provided so that foreign visitors can make it their headquarters during the Conference.

Reservations should be made as soon as possible with the Instrument Society of America, 1117 Wolfendale St., Pittsburg 12, Penna.

THE MISKELLA Infra-Red COMPANY
Designers-Manufacturers of
INFRA-RED OVENS · APPLIANCES · SECTIONAL UNITS · MACHINES AND CONVEYORS
TELEPHONE · HENDERSON 0210
CABLE ADDRESS Infra-Red
MAIN OFFICE AND LABORATORY
EAST 71st AND GRAND AVENUE
CLEVELAND 4 OHIO

Random Comment on the Industrial Scene

(Continued from page 11)

in industry upon whose shoulders rest management. It pays to take time to think.

* * *

New Fields for Finishing. A new collection of plastic-coated, printed fabrics and slipcovers was introduced recently at a large department store in New York. A thin and virtually invisible plastic coating has been applied to decorative cotton yardage. The material may be used for draperies, upholstery and cushion covers.

Plastic coated fabrics may be cleaned with a damp cloth, also they will withstand laundering.

Who knows but that automatic reciprocating spray equipment, roller coating machines and drying ovens may find places outside the metal and wood using industries.

* * *

Shellac. The shellac industry in India is facing a real crisis. This condition was brought about through the discovery and use of synthetic resins in the United States. India annually produces 40,000 to 50,000 tons of raw lac. In the past the United States used one half to two thirds of their production. In this country, a great part of the shellac was used in making phonograph records. These are now being produced from synthetic resins at very little if any increased cost, and the records are unbreakable.

In order to compete with the advance of science India will have to find ways and means of reducing the price of raw lac, and through research discover a means

SPRAY BOOTHS
Stay Clean
with **SPRA-KLEEN**
Reg. U. S. Pat. Off.

SPRA-KLEEN prevents over spray from fouling water curtain spray booths.

SPRA-KLEEN prevents clogging of nozzles, circulating lines and ventilating ducts.

QUICK and ECONOMICAL

SPRA-KLEEN is easy to use and saves time and labor.

• Write today for full information

Harco Chemical Company
Industrial Cleaning Compounds
CRANFORD NEW JERSEY

MIRACLE

5 Gallon BLUE BOY Model

PAINT REJUVENATOR

Restores Paints, Lacquers, Enamel Products and Pigment Primers, to original consistency in 3 to 10 minutes without opening the can. Available for Round or Square 5-gallon cans. Explosion proof electrical equipment if desired. Also other units from ¼-pint to 50-gallon drum capacity available. Originators of Paint Rejuvenating Equipment—ten years—thousands of satisfied users.

Miracle Paint Rejuvenator Co.
127 E. 9TH STREET ST. PAUL, MINN.

NEW BOOK

(452 Pages)

Descriptions of modern finishing materials and equipment for their application, drying and conveying are presented so that the reader may have an over-all picture of modern industrial finishing operations. Throughout, the main emphasis is on proper selection and use of materials and equipment to get the best possible finish at minimum cost.

Contents:

Sec. I. Modern Organic Finishing Materials—3 chapters.
Sec. II. Modern Application Methods—5 chapters.
Sec. III. Drying Methods — 3 chapters.
Sec. IV. Product Handling in the Finishing Department—1 chapter.
Sec. V. Finishing Processes—11 chapters.
Sec. VI. General Considerations—2 chapters Bibliography and Index.

PRICE $8.50

(Cash to Accompany Order)

Industrial Finishing

1142 N. Meridian St., Indianapolis 4, Ind.

of producing shellac records which are unbreakable and free from surface noise.

* * *

Better Synthetic Rubber. It is said that through greatly extended activities in the synthetic rubber fields, the Phillips Petroleum Co., has come up with a much improved butadiene-styreen synthetic rubber. The new product approaches natural rubber in many important properties.

The improvements have been made through development of extremely rapid emulsion polymerization recipes for the production of rubber at very low temperatures.

Tires made from the new product are being given extensive tests. Results of these tests will prove very interesting.

* * *

Courtesy—During the past five or six years courtesy has become practically a forgotten word in business and industry. This was due to regimentation and the rush of the times. Now there is no excuse. It is high time for management to insist that employees be courteous to customers and those who enter their place of business. It may take a little time to train them, but it is the cheapest advertising obtainable, and it will promote more goodwill than any firm could buy and pay for.

* * *

No Lacquerware. The famous Chinese lacquerware exported before the war is no longer available due to high costs in that country. Very few newly manufactured articles are being shipped under present conditions according to The China Daily Tribune, an

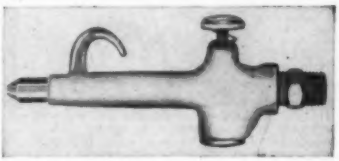
POTTER PAINT CO., INC.
CORTLAND • NEW YORK
IMPROVED LACQUER THINNERS AND SYNTHETIC REDUCERS
Our Specialization Can Save You Money
WRITE TODAY FOR FREE SAMPLES
BETTER FLOW GLOSS AND BLUSH RESISTANCE
THINNER SPECIALISTS

English language newspaper in Shanghai.

Most of the cost in lacquerware is labor as it is almost entirely handwork. A durable wood called san mu is used, and it must be absolutely dry before applying lacquer. In the past strands of hemp were glued over the wood with pig's blood to prevent it from cracking, but hemp cloth applied with adhesives has replaced the old methods. This is applied on heavy articles with large surfaces, and tung oil is also applied to them. For small, thin, high quality articles silk is applied to the wood, then covered with tung oil. The pieces are then coated with lacquer.

Selection and Care of Spray Guns

★ Much thought, planning and discussion is devoted to the selection of the spray gun air cap, fluid needle, pattern of spray in relation to the nature of the object to be finished and the material to be used. In most cases, wise selection is made and proper equipment is secured to perform the work satisfactorily. Time goes on, results are good. To maintain top performance all spray guns should be inspected at regular intervals and old, worn parts replaced when necessary. This will save material and assure uniform quality work. It should be remembered, the spray gun is a tool and regardless of how good the spray operator is, he cannot do good work unless he has the proper tools. Prevention is cheaper than rejects.—J. C.



Leakproof Air Blow Gun

Use this gun for blowing dust, dirt or lint from the surfaces of parts and products to be coated with paint or any other kind of coating. It will improve your finish tremendously.

Also useful for blowing out moisture or other entrapped liquid from crevices, seams or indentations in parts to be cleaned or painted.

Fits comfortably in the palm of hand. Has button control air valve. Special composition washers prevent leakage. We can furnish any type nozzles—round, pointed, flat, or 10-in. extension. Nozzles are interchangeable and renewable. Every plant should have one or more. Write us!

G. M. MANUFACTURING CO.
Engineers, Mfrs. of Complete Spray Equipment
216 N. Clinton St. Chicago, Ill.

BLEACHES
Decolorant-Color Dissolvent
Aspen Concentrate
Write for information and quotations.
H. BEHLEN & BRO., Inc., 10 Christopher St., New York 14, N. Y.

REG. U. S. PAT. OFF. KNU-KOTE SINCE 1899
FINISH
Refinishes and removes surface defects on furniture. Hardens in 20 minutes. Used by leading manufacturers. See your supplier or write . . .
NATIONAL POLISH COMPANY, VAN WERT, O.

American-Marietta to Expand Louisville Plant

Expenditure of $100,000 this summer on plant renovation and equipment rearrangement will add more than 50 per cent to the paint output of Chas. R. Long, Jr. Company at Louisville, according to an announcement made today by the American-Marietta Co.

A specialist in railroad finishes and pencil lacquers, the fifty-year-old Long enterprise was acquired by American-Marietta early this year. Completion of the remodelling on September 1 will give the Kentucky operation most of the stream-lined production techniques developed at ten other A-M paint plants from coast to coast.

Describing the $100,000 Louisville construction program, American-Marietta's president, Grover M. Hermann, declared, "Plant utilization, as much as plant acquisition, has given our company a 400 per cent increase in output since 1944.

"Fortunately, the skillful arrangement of equipment at Louisville will permit us to expand our capacity without building new facilities at present high costs.

American-Marietta operations at Cleveland, Chicago Heights and Kankakee, Ill., Seattle, and New Westminster, B. C., have been expanded along similar lines during the past twelve months. In general, production gains have been affected by segregating hazardous operations to guard against full department shutdowns, by simplifying the functions of supervisory personnel, and by consolidating successive paint-making processes to reduce movement of materials.

In the Louisville expansion, approximately $40,000 will go toward purchase and installation of new equipment. Conversion of an unused garage for use in lacquer production will cost something over $15,000, exclusive of equipment.

Laboratory expansion at a cost of $10,000 will take over space vacated by removal of lacquer manufacture to the garage building. The balance of the $100,000 remodelling contracts at Long will provide new lighting and ventilating fixtures, improved power plants for ball and roller mills, and new rest room and locker facilities required by increased personnel.

Improvements at the Long plant were engineered by American-Marietta's own architectural department headed by R. L. Troxell.

Gardner Promoted by Monsanto's Merrimac Divn.

Monsanto Chemical Co's. Merrimac Division, announces the appointment of Arthur L. Gardner to assistant to the division general manager. Division general manager, J. B. Rutter, announced that Gardner would deal primarily with production problems.

Mr. Gardner is a graduate of the Massachusetts Institute of Technology. He joined the Merrimac Co. as department superintendent in 1919 and became plant superintendent at Everett in 1920. Several years later he became works manager and in 1942 was promoted to production manager.

Polymerization

THE PROCESS of polymerization, which takes place in the drying of the modern coating, is sufficiently important to the users of protective and decorative coatings to warrant a brief explanation. Generally speaking, a coating dries by three different methods: 1) by evaporation of a volatile solvent, 2) by the chemical reaction known as oxidation, in which oxygen from the air gradually combines chemically with the unsaturated constituents of the drying oil portion of the coating, resulting in the film setting of useful hardness, and, sometimes, promoting subsequent polymerization; and 3) by another chemical reaction, just mentioned, polymerization.

This is the chemical linkage of small molecular units to form much larger molecules. Oxidation may precede the polymerization reaction to a minor extent but the oxygen absorption is very small. Consequently the film is resistant to embrittlement and cracking on aging which occurs in films that depend largely on oxygen absorption for their formation.

The phenolic resin baking finishes rely on polymerization alone for the hardening of the film, even in the complete absence of oxygen.

The phenolic resin and drying oil formulations dry by a combination of polymerization and oxidation, though the former process exerts the greatest effort upon their drying characteristics. In this respect, they differ from ordinary coatings in which oxidation plays the major role.—BAKELITE CORP.

Classified Advertising

Rate: 50 cents per line per insertion—minimum $1.50

RESEARCH & PATENTS

Matured executive, chemical engineer and patent attorney, over 20 years' experience in organic coatings for metal, wood and textiles, seeks position with reputable and progressive organization as director or coordinator of research and patent work. Now located in southern Indiana. Available promptly. Address IF-392, care Industrial Finishing.

WORKING FOREMAN

For small finishing department, on high-grade mahogany furniture. Permanent. Location Eastern Conn. Give age, experience, reference and salary wanted. Address IF-413, care Industrial Finishing.

FINISHING AND PLASTIC ENGINEER

Wanted with practical experience, particularly in organic chemistry and all fields of plastic. N. E. concern. In reply state experience and salary desired. Address IF-414, care Industrial Finishing.

WANTED

Man of long experience in stain and wood finishing. Must be willing to live in the vicinity of Boston, Massachusetts. Must be capable of taking over the finishing department. Address IF-417, Industrial Finishing.

FINISHING FOREMAN

Wanted. Experienced in preparation and finishing of wood and metal. Able to train and supervise production organization. State age and previous experience. Address IF-418, care Industrial Finishing.

STAIN AND FILLER MAN

Wanted, a thoroughly experienced Stain and Filler man who can supervise formulation of stains, fillers, etc. We want a man who has a thorough knowledge of the woods used and is thoroughly conversant and experienced in the application of all wood finishing materials and the production problems encountered in selling the wood furniture trade. Please state age, previous experience in detail, educational background, and salary expected. All replies completely confidential. Address your reply to Sales Manager, The Glidden Co., Nubian Industrial Division, Chicago 39, Ill.

TECHNICAL SALES SERVICE ENGINEER

An outstanding opportunity is available for a technically trained person of the sales type to assist our present selling organization in sales development of a new and unusual group of coatings for product finishing. This is an entirely new development in our industry and this position offers many opportunities for advancement. Salary open. Write your qualifications. JONES-DABNEY CO., Louisville, Ky.

SALESMAN WANTED

Small progressive adhesive concern desires to contact man free to handle industrial adhesives in addition to present line. Only replies that can prove ability will be answered. Have interesting proposition for right man. All applications will be confidential. Address IF-415, care Industrial Finishing.

SALESMAN WANTED

Industrial lacquers and synthetics salesman for New England or New York areas. Unusual opportunity for experienced man to connect with large manufacturer of protective coatings. Generous financial arrangement. Our men know of this advertisement. Replies held confidential. Address IF-409, care Industrial Finishing.

INDUSTRIAL SALESMAN OR SALES MANAGER

Many capable product finishing salesmen desirous of changing connections in the past two years found it impossible to do so because of raw materials. Although we are not ready to expand our sales activity at this moment, the time may not be far off, and we would be pleased to discuss future employment with any qualified person, who would have an interest in joining the sales organization of one of the leaders in the product finishing field whose technical accomplishments, sales assistance and remuneration plans are recognized among the best in our industry. We manufacture a complete line of Enamels, Lacquers, Varnishes and Resins. If interested, please write a brief outline of your background.

If you are not interested in the above but feel qualified as a Sales Manager and can direct the product finishing sales efforts of others, we would be pleased to hear from you. All replies will be held in strict confidence. JONES-DABNEY CO., Louisville 8, Ky.

FORD CUPS

THE VOL-U-METER COMPANY
Buffalo 16, New York

ZINC CHROMATE PRIMER WANTED

Prominent paint manufacturer wants excess or surplus Zinc Chromate Primer, to specification AN-TT-P-656. State quantity available and price. Address IF-416, care Industrial Finishing.

FOR SALE

Approximately 300 Iron Agitators and approximately 500 Wooden Agitators for use with 50-gallon wooden barrels. Also, approximately 1000 Iron Agitator Cap Plugs. The LILLY Co., High Point, N. C.

FOR SALE

The following items "as is" in original drums. Prices very low, subject to prior sale. F.O.B. Mystic, Conn. 15 55-gal. drums olive drab semi-gloss air dry enamel. 10 55-gal. drums clear gloss lacquer. 60 55-gal. drums flat lacquer. 60 55-gal. drums semi-gloss lacquer. CONNECTICUT CABINET CORP., Mystic, Conn.

FOR SALE

Have the following items of hardware for immediate sale, prices at cost or lower subject to prior sale. F. O. B. Mystic, Conn. 1¼x72-in. piano hinges, 4,600 pcs. 1¼x12-in. piano hinges, 35,900 pieces. 1¼x48-in. piano hinges, 9,320 pieces. 6 barrell bolts, 18,500 pieces. Air-Lock Fasteners, 27,000 sets. ¾-in. Rubber stripping, 20,000-ft. 1-in. roofing nails, Galvanized, 3,300-lbs. CONNECTICUT CABINET CORP., Mystic, Conn.

FOR QUICK SALE

Automatic and Semi-Automatic Spray Equipment. 2 Binks Water Spray Booths. 2 Binks Built Chain Conveyors complete with drive. 2 Steam Ovens with controls. Binks Automatic Spray Guns with skip spray controls. Several Binks bench type Dry Spray Booths. Turntables. Binks Semi-Automatic Spray Equipment. Several Binks Oil and Water Extractors. 2 Special Steam Ovens for small articles with enclosed conveyor. Other Industrial Equipment, including 6 Consolidated Package Sealing Machines. Can make immediate delivery. Photos of equipment sent on request. CENTRAL HARDWARE & MACHINERY CO., 2303 E. 12th St., Kansas City, Mo.